

FINAL REPORT

**Groundwater IRM
3rd Quarter 2014
Groundwater Monitoring Report**

**GE Aviation
612/51502**

December 2014



**Groundwater IRM
3rd Quarter 2014
Groundwater Monitoring Report**

Evendale, Ohio

**Prepared for:
GE Aviation**

December 2014



**SCOTT L. CORMIER, PE – VICE PRESIDENT
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1. INTRODUCTION

O'Brien & Gere has prepared this report on behalf of the General Electric Company (GE) to present the results of groundwater monitoring activities conducted during July through September 2014 (herein referred to as Third Quarter 2014) at the GE Aviation facility located in Evendale, Ohio. The quarterly monitoring event was conducted in accordance with the approach and methods outlined in the 2010 IRM Performance Monitoring Plan (PMP) prepared by O'Brien & Gere.

Groundwater monitoring was conducted to monitor the temporal effect on groundwater conditions of a groundwater Interim Remedial Measure (IRM). The groundwater IRM, which includes the operation of seven groundwater extraction wells and a groundwater treatment plant (GWTP), has been installed on the southern portion of the GE Aviation manufacturing facility (Facility) in Evendale, Ohio, within an area known as the former Air Force Plant 36 (AFP 36) (**Figure 1**). The groundwater remedial measure was initiated as an IRM under a Resource Conservation and Recovery Act (RCRA) Corrective Action Permit with the objective of mitigating off-site migration of compounds of potential concern (COPCs), while minimizing the risk of cross-contamination and/or reducing the effectiveness of biodegradation processes.

Groundwater monitoring data are evaluated and reported after each sampling event, including evaluations of quality assurance, cross-contamination potential, and significant short-term anomalies. A summary of the performance monitoring assessment for Third Quarter 2014, including responses to the key study questions outlined in the PMP, is provided in **Table 1**. Relevant details are provided herein. Long-term trends and overall remediation progress will be evaluated and reported annually, at the end of each year.

2. METHODS

The groundwater monitoring network (**Figure 1**) consists of a total of 116 wells completed in three water-bearing units (Perched Zone, Upper Sand and Gravel (USG), and Lower Sand and Gravel (LSG)). As outlined in the PMP, the general scope of groundwater monitoring activities includes:

- Groundwater level monitoring using manual electronic as well as pressure transducer measurements at frequencies outlined in the PMP. Monitoring was conducted using a total of 66 wells completed in the Perched Zone (21 wells), USG (23 wells), and LSG (22 wells). **Table 2** provides a listing of the wells utilized for Progress Monitoring.
- Groundwater quality sampling was conducted using passive diffusion bag samplers (PDBs) for analysis of volatile organic compounds (VOCs) and in-situ field bioparameters (e.g., dissolved oxygen [DO] and oxidation-reduction potential [ORP]), in accordance with frequencies outlined in the PMP. Groundwater samples were collected from a total of 42 wells completed in the Perched Zone (10 wells – wells AF-5P and OSMW-1P were not sampled due to a stuck or missing PDB), USG (17 wells), and LSG (15 wells) (**Table 3**).
- Monthly sampling of groundwater from actively pumping extraction wells for analysis of VOCs.
- Evaluation of data from groundwater level and quality monitoring, including statistical analysis to address hydrogeologic conditions of stability (equilibrium) and potential cross-contamination.

Well completion data for groundwater level and quality monitoring are summarized in **Tables 2** and **3**, respectively. Methods and procedures for groundwater monitoring were conducted in accordance with the USEPA approved Sampling and Analysis Plan (SAP) (O'Brien & Gere, 2009) and the PMP. Additional details on field methods are provided in *Groundwater IRM, Quarterly Groundwater Monitoring Report – 3rd Qtr – 2012* (O'Brien & Gere, 2013).

Field quality control (QC) samples included trip blanks, field duplicates, and matrix spike/matrix spike duplicates (MS/MSDs). The QC samples were prepared in accordance with Section 3.3 of the SAP, using the frequencies specified in the Quality Assurance Project Plan (QAPP) tables contained in the SAP. Laboratory QA measures are identified in the SAP.

3. SUMMARY OF MONITORING RESULTS

Groundwater monitoring during the Third Quarter 2014 consisted of the collection and analysis of groundwater level and quality data to evaluate the occurrence of cross-contamination and significant short-term anomalies. A summary of the performance monitoring assessment is presented in [Table 1](#) and additional details are provided below.

An electronic copy of the laboratory analytical report is included in the attached CD. The laboratory analytical results for VOCs underwent Level A data review and verification by O'Brien & Gere ([Appendix A](#)) for the Third Quarter 2014 data.

3.1 GROUNDWATER PUMPING SYSTEM

- The overall IRM system average flow rate was 251 gallons per minute (gpm) and the run-time was approximately 98%. Extraction well average flow rates and durations for the Third Quarter 2014 include:
 - » Perched Zone – 3 gpm (EW-5P) to 49 gpm (EW-6P) – The pump in extraction well EW-5P went out of service in late April 2014 and was replaced on September 15, 2014, and has pumped at an average rate of 28 gpm since its replacement.
 - » USG – 10 gpm (EW-7S)
 - » LSG – 49 (EW-3D and EW-8D).

3.2 GROUNDWATER ELEVATIONS

- Groundwater elevation data were used to create hydrographs ([Figures 5](#) through [7](#)) and calculate vertical hydraulic gradients between select nested wells for trend and statistical analysis. The results of these analyses were used to evaluate the occurrence of cross-contamination and equilibrium conditions (as summarized in [Table 1](#)) as well as estimate the capture zone of each extraction well(s) ([Figures 2](#) through [4](#)).

3.3 GROUNDWATER QUALITY

- Groundwater quality data for Third Quarter 2014 are provided in [Table 4](#). Groundwater quality data were summarized via time-series analyses for individual and nested monitoring wells ([Figures 8](#) through [10](#)). In addition, statistical analyses were conducted to assess pumping risk associated with vertical and/or lateral cross-contamination ([Table 5](#)). Groundwater quality data and associated intrawell statistical analyses do not show significant trends or triggers in VOC concentrations indicative of cross-contamination, with the following noted exceptions:
 - » Concentrations of vinyl chloride (VC) at well OSMW-4S and cis 1,2-dichloroethene (cis 1,2-DCE) and VC at well OSMW-4D increased this sampling event and will continue to be closely monitored.
 - » AF-11S had increased during both the First Quarter 2014 and Second Quarter 2014 to pre-IRM startup concentrations ([Figure 9](#)), but decreased during the Third Quarter 2014. VOC concentrations will continue to be monitored to evaluate whether concentration increases may be due to a change in groundwater flow direction related to the reduction in EW-7S pumping.
 - » Wells OSMW-3D and OSMW-6D showed decreasing concentrations after increasing during recent quarterly events.
- Groundwater quality data for extraction wells and IRM system influent samples indicate steady or decreasing concentrations of CVOCs ([Figure 11](#)) with the exception of EW-4P, which exhibited increasing CVOC concentrations associated with plume movement within the system capture zone (due to re-start of EW-5P).

4. REFERENCES

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- U.S. Environmental Protection Agency, 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities: Unified Guidance. EPA 530-R-09-007. March 2009.

Tables

Table 1

GE OHD 000 817 312
 GE Aviation_Evendale, Ohio - Groundwater IRM
 Summary of Performance Monitoring Assessment - 3Q-14

	PRIMARY DATA GROUP	KEY QUESTIONS	YES	NO	COMMENTS
GROUNDWATER ELEVATIONS	Hydrographs/Trends	Significant trends identified?			Background groundwater levels decreased (or declined) during 3Q-14
		Perched	✓		Couple noticeable rises in water levels due to heavy rainfall events
		USG	✓		
		LSG	✓		
		Depression of water levels maintained?	✓		Except for USG where aquifer experienced some recovery during 3Q-14
	Vertical Gradients	Active pumping maintaining gradient reversal?		✓	AF-7P/S maintained; AF-4P/S lost during EW-2P shutdown;
		Statistically significant increasing (downward vertical) trends?		✓	AF-11S/D and OSMW-4S/D lost due to reduction in EW-7S pumping
	Equilibrium/Capture Zones	Steady state/equilibrium maintained?	✓		No, except for AF-4P indicated some loss of gradient reversal during EW-2P shutdown
		Capture zone maintained at or near design?	✓		Except for USG where capture zone is now smaller than designed
GROUNDWATER QUALITY	Chemical Trends	Significant trends identified?			
		Perched	✓		AF-25P - VOC increases associated with plume movement/IRM pumping
		USG	✓		OSMW-4S - VC increased - watch closely; OWMW-9S stabilizing after increasing previously
		LSG	✓		OSMW-4D - cis-1,2-DCE and VC increased slightly - watch closely; OSMW-3D, OSMW-6D, OSMW-8D and TMW-2D decreased after increasing during recent events
		Field bioparameters - indicative of cross-contamination?	✓		
		Field bioparameters - reduced biodegradation effectiveness?	✓		
	Vertical Cross-Contamination	Nested wells - vertical cross-contamination?	✓		
	Lateral Cross-Contamination	Potential off-site sources inhibiting remediation?	✓		
	Influent Concentrations	Significant trends identified?	✓		EW-4P - increasing cis- & trans-1,2-DCE and TCE associated with plume movement and re-start of EW-5P
		Statistical trends - Stable (no significant trends)?	✓		
Note		Is continued pumping beneficial?	✓		
		Statistical trends - Decreasing (significant negative trend)?	✓		EW-3D, EW-6P, EW-8D - decreasing TCE Group constituent concentrations, continue to watch
		Optimize or re-evaluate?	✓		
	Note	Key questions in BOLD are PMP Problem Study Questions			

Table 2

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GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Level Monitoring

Water-Bearing Zone	Well ID - Groundwater Level Monitoring			Transducer ³	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) ⁴	
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²							Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)		
Perched															
	AF-2P	AF-2P	AF-2P		456379.19	1418008.71	562.10	563.39	2.00	28.00	534.10	33.00	529.10	34.46	
			AF-3P		456297.40	1417884.19	560.40	561.82	2.00	21.00	539.40	31.00	529.40	32.42	
	AF-4P	AF-4P		T	456180.93	1417877.42	560.40	561.90	2.00	24.50	535.90	34.50	525.90	36.21	
	AF-5P	AF-5P	AF-5P		455882.90	1417831.43	559.80	561.22	2.00	28.00	531.80	33.00	526.80	34.75	
	AF-6P	AF-6P			456059.85	1417402.52	559.80	561.68	2.00	27.70	532.10	32.70	527.10	35.34	
	AF-7P	AF-7P	AF-7P	T	455478.24	1417577.30	559.80	561.21	2.00	31.50	528.30	36.50	523.30	37.43	
	AF-10P	AF-10P			456127.64	1416977.53	559.90	561.48	2.00	17.40	542.50	22.40	537.50	23.68	
	AF-12P	AF-12P			456295.77	1416183.22	574.20	575.05	2.00	14.50	559.70	19.50	554.70	20.78	
	AF-13P	AF-13P			456494.02	1416526.13	565.40	566.82	2.00	35.37	530.03	45.37	520.03	32.45	
		AF-14P			456528.73	1416790.19	559.53	558.54	2.00	17.50	542.03	27.50	532.03	28.92	
	AF-23P	AF-23P	AF-23P		457010.00	1417595.00	560.00	559.75	2.00	22.88	537.12	32.88	527.12	32.15	
	AF-24P		AF-24P		456451.17	1417576.18	559.82	558.89	2.00	26.23	533.59	36.23	523.59	35.40	
	AF-25P	AF-25P	AF-25P	T	456074.92	1417500.43	558.40	558.08	2.00	23.27	535.13	33.27	525.13	33.10	
	AF-26P				456122.18	1417674.94	558.30	557.78	2.00	30.96	527.34	40.96	517.34	35.44	
			AOC LDMW-1S		457924.00	1417429.00	556.20	555.81	2.00	13.29	542.91	23.29	532.91	22.90	
			AOC PSTMW-1SR		459022.76	1417784.33	556.91		2.00						
			AOC PSTMW-2S		458993.37	1417998.15	559.90	559.70	2.00	18.50	541.40	28.50	531.40	24.50	
	GM-3P				457074.62	1418304.17	559.50	559.24	2.00	19.30	540.20	29.30	530.20	29.3 ⁵	
	GM-9P	GM-9P		T	457104.10	1417217.11	560.30	559.95	2.00	18.00	542.30	28.00	532.30	27.65	
			H-221		454547.97	1417264.66	554.70	554.37	2.00	20.00	534.70	30.00	524.70	28.65	
	OSMW-1P	OSMW-1P	OSMW-1P	T	455078.23	1417736.02	551.50	554.09	2.00	20.00	531.50	30.00	521.50	32.53	
	OSMW-2P	OSMW-2P	OSMW-2P		455601.82	1417822.50	554.80	557.01	2.00	27.00	527.80	37.00	517.80	38.87	
	OSMW-10P	OSMW-10P			T	455020.27	1417400.34	555.82	558.57	2.00	20.00	535.82	30.00	525.82	32.57
	OSMW-11P	OSMW-11P				455459.30	1418006.45	552.04	551.71	2.00	13.00	539.04	23.00	529.04	22.93
	OSMW-12P					455880.25	1418332.91	553.66	553.35	2.00	14.70	538.96	24.70	528.96	24.63
	OW-1P					455883.50	1417685.55	559.42	559.75	2.00	30.00	529.42	35.00	524.42	35 ⁵
	PMW-3P	PMW-3P		T	455249.65	1417470.90	557.41	560.10	2.00	16.00	541.41	26.00	531.41	29.07	
	PMW-5P	PMW-5P			1417293.42	455489.81	559.11	558.71	2.00	20.15	538.96	30.15	528.96	29.75	
	PMW-6P	PMW-6P			1417456.08	455769.69	561.50	561.10	2.00	28.57	532.93	38.57	522.93	38.17	
	TMW-1P	TMW-1P		T	455737.69	1417702.75	559.77	562.12	2.00	22.00	537.77	32.00	527.77	33.84	
	TMW-2P	TMW-2P			455595.65	1416931.21	556.94	559.71	2.00	28.50	528.44	33.50	523.44	38.45	

See notes on page 3.

Table 2

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GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Level Monitoring

Water-Bearing Zone	Well ID - Groundwater Level Monitoring			Transducer ³	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) ⁴	
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²							Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)		
USG															
	AF-4S	AF-4S		T	456183.67	1417879.81	560.30	562.22	2.00	43.00	517.30	53.00	507.30	54.03	
	AF-5S	AF-5S	AF-5S		455887.32	1417833.15	559.60	561.60	2.00	41.00	518.60	51.00	508.60	51.92	
	AF-6S	AF-6S			456056.40	1417402.71	560.10	562.67	2.00	41.00	519.10	51.00	509.10	52.80	
	AF-7S	AF-7S	AF-7S	T	455482.27	1417577.68	559.70	562.02	2.00	45.00	514.70	55.00	504.70	56.68	
	AF-8S	AF-8S			455524.80	1417088.16	559.10	561.08	2.00	50.00	509.10	50.00	499.10	60.00	
	AF-9S	AF-9S	AF-9S	T	455790.53	1416793.04	562.00	564.19	2.00	50.00	512.00	60.00	502.00	61.75	
	AF-10S	AF-10S			456134.19	1416979.21	559.90	561.98	2.00	61.00	498.90	71.00	488.90	67.75	
	AF-11S	AF-11S		T	456094.23	1416577.99	564.70	565.20	2.00	53.00	511.70	63.00	501.70	63.27	
	AF-12S	AF-12S			456295.87	1416186.19	574.00	575.41	2.00	64.00	510.00	74.00	500.00	72.31	
	AF-13S	AF-13S			456488.94	1416522.95	565.20	567.91	2.00	46.50	518.70	56.50	508.70	56.5 ⁵	
	AF-14S	AF-14S			456526.22	1416788.87	559.50	558.56	2.00	56.50	503.00	66.50	493.00	66.5 ⁵	
	AF-19S	AF-19S		T	455823.23	1417037.78	561.60	563.87	2.00	52.40	509.20	62.40	499.20	64.65	
	AF-20S	AF-20S			455927.77	1416940.35	559.80	562.47	2.00	59.00	500.80	69.00	490.80	71.57	
	GM-9S	GM-9S			T	457108.81	1417214.23	561.00	560.13	2.00	43.00	518.00	53.00	508.00	52.09
	OSMW-1S	OSMW-1S	OSMW-1S	T	455082.59	1417738.59	551.50	554.14	2.00	41.00	510.50	51.00	500.50	52.84	
	OSMW-3S	OSMW-3S	OSMW-3S	T	455309.01	1417107.64	557.10	559.91	2.00	54.00	503.10	64.00	493.10	66.60	
	OSMW-4S	OSMW-4S	OSMW-4S	T	456144.10	1416386.57	565.50	565.10	2.00	65.00	500.50	75.00	490.50	75.84	
			OSMW-5S		453589.27	1416137.49	576.70	576.44	2.00	63.80	512.90	73.80	502.90	73.54	
			OSMW-6S		455149.40	1416267.11	586.61	586.38	2.00	80.00	506.61	90.00	496.61	88.78	
			OSMW-8S		454625.51	1415147.34	584.64	584.33	2.00	77.41	507.23	87.41	497.23	86.70	
	OSMW-9S	OSMW-9S			455705.63	1415409.73	594.66	594.37	2.00	88.80	505.86	98.80	495.86	101.30	
	OSMW-10S	OSMW-10S		T	455019.93	1417400.39	555.82	558.59	2.00	47.20	508.62	57.20	498.62	58.20	
	OSMW-11S	OSMW-11S			455459.42	1418006.57	552.04	551.64	2.00	37.25	514.79	47.25	504.79	47.20	
	PMW-3S	PMW-3S		T	455249.82	1417470.89	557.41	560.12	2.00	44.80	512.61	54.80	502.61	57.40	
	TMW-1S	TMW-1S	TMW-1S	T	455739.88	1417703.19	559.78	561.63	2.00	48.30	511.48	58.30	501.48	59.75	
	TMW-2S	TMW-2S	TMW-2S		455597.25	1416929.92	557.01	560.15	2.00	40.00	517.01	50.00	507.01	53.08	

See notes on page 3.

Table 2

GE OHD 000 817 312

GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Level Monitoring

Water-Bearing Zone	Well ID - Groundwater Level Monitoring			Transducer ³	Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter (inches)	Well Screen				Total Depth (ft bTOC) ⁴
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²							Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
LSG														
	AF-1D				456927.14	1417977.19	559.80	559.78	4.00	108.00	451.80	118.00	441.80	118.00
	AF-5D		AF-5D		455889.87	1417834.37	559.50	561.66	2.00	100.00	459.50	110.00	449.50	108.1
	AF-7D	AF-7D	AF-7D	T	455489.28	1417578.92	559.70	561.23	4.00	109.00	450.70	119.00	440.70	118.77
	AF-8D				455517.69	1417091.88	559.00	560.73	4.00	86.00	473.00	96.00	463.00	93.72
	AF-9D	AF-9D		T	455794.33	1416786.95	562.20	563.93	4.00	78.00	484.20	88.00	474.20	93.30
	AF-11D	AF-11D		T	456087.97	1416583.70	564.90	566.27	4.00	92.00	472.90	102.00	462.90	101.79
	AF-12D	AF-12D			456297.35	1416191.94	573.30	575.45	4.00	102.00	471.30	112.00	461.30	111.85
	AF-15D	AF-15D			456991.44	1416851.88	559.80	560.95	4.00	103.00	456.80	113.00	446.80	112.86
	AF-16D				457003.87	1417280.19	560.40	561.83	4.00	91.00	469.40	101.00	459.40	102.57
	AF-17D	AF-17D			456484.75	1417467.78	560.30	561.37	4.00	90.00	470.30	100.00	460.30	99.48
	AF-19D	AF-19D		T	455818.36	1417039.55	561.70	564.10	2.00	81.20	480.50	91.20	470.50	93.40
	AF-20D	AF-20D			455933.76	1416941.09	559.80	562.52	2.00	81.10	478.70	91.10	468.70	93.56
	AF-21D	AF-21D	AF-21D		455941.03	1416777.12	560.00	559.61	2.00	80.00	480.00	90.00	470.00	90.11
	GM-3D				457163.25	1418266.08	560.80	562.47	4.00	138.00	422.80	148.00	412.80	148.00
	GM-5D				457241.00	1416754.00	562.00	564.07	4.00	126.43	455.57	116.43	445.57	116.75 ⁵
	GM-9D	GM-9D		T	457107.93	1417219.35	561.00	560.06	4.00	100.00	461.00	110.00	451.00	109.30
	H-223	H-223			454519.10	1417253.00	555.00	555.60	2.00	154.50	400.50	164.50	390.50	161.51
	OSMW-1D	OSMW-1D	OSMW-1D	T	455082.67	1417738.40	551.10	554.16	2.00	80.00	471.10	90.00	461.10	92.75
	OSMW-3D	OSMW-3D	OSMW-3D	T	455309.10	1417107.28	557.10	559.91	2.00	131.00	426.10	141.00	416.10	143.31
	OSMW-4D	OSMW-4D	OSMW-4D	T	456143.93	1416386.96	565.50	565.14	2.00	127.00	438.50	137.00	428.50	135.94
			OSMW-5D		452875.51	1416398.42	560.53	560.25	2.00	121.00	439.53	131.00	429.53	130.72
	OSMW-6D	OSMW-6D	OSMW-6D		455147.40	1416265.11	586.38	586.08	2.00	149.77	436.61	159.77	426.61	162.20
	OSMW-7D	OSMW-7D	OSMW-7D		456711.82	1415686.05	592.44	592.09	2.00	141.00	451.44	151.00	441.44	148.80
			OSMW-8D		454625.45	1415147.03	584.64	584.34	2.00	175.30	409.34	185.30	399.34	187.20
	OSMW-9D	OSMW-9D			455705.86	1415409.84	594.66	594.39	2.00	166.00	428.66	176.00	418.66	175.60
	OSMW-10D	OSMW-10D		T	455020.11	1417400.16	555.82	558.61	2.00	130.00	425.82	140.00	415.82	142.63
	OSMW-11D				455459.26	1418006.71	552.04	551.72	2.00	81.00	471.04	91.00	461.04	90.30
	OSMW-11DD				455459.02	1418006.62	552.04	551.68	2.00	140.00	412.04	150.00	402.04	149.83
	OSMW-12D				455880.20	1418333.14	553.66	553.29	2.00	123.00	430.66	133.00	420.66	133.76
	OSMW-12DD				455880.36	1418333.21	553.66	553.18	2.00	141.00	412.66	151.00	402.66	149.20
	OSMW-13D				455241.33	1417853.92	552.03	551.82	2.00	96.00	456.03	106.00	446.03	103.65
	OSMW-13DD				455241.62	1417854.06	552.03	551.70	2.00	142.00	410.03	152.00	400.03	151.84
	OW-3D				455360.77	1417112.74	557.72	557.43	2.00	135.00	422.72	140.00	417.72	140 ⁵
	OW-4D				455422.91	1417165.94	559.68	559.41	2.00	135.00	424.68	140.00	419.68	140 ⁵
	PMW-2D	PMW-2D			456024.30	1417902.40	560.05	562.47	2.00	125.00	435.05	135.00	425.05	139.70
	PMW-3D	PMW-3D		T	455249.80	1417471.07	557.41	560.04	2.00	126.00	431.41	136.00	421.41	139.75
	PMW-4D	PMW-4D			456424.32	1416617.44	564.33	567.25	2.00	130.00	434.33	140.00	424.33	142.51
	TMW-1D		TMW-1D		455740.26	1417702.92	559.78	562.02	2.00	94.30	465.48	104.30	455.48	106.45
	TMW-2D	TMW-2D	TMW-2D		455597.15	1416930.07	557.01	559.86	2.00	117.30	439.71	127.30	429.71	129.32

Notes ¹ Quarterly Progress Monitoring in the Perched, USG and LSG.

² Semiannual sampling occurs in the second and fourth quarters.

³ T = Transducer; Blank = Manual.

⁴ Total depths from ground surface (GM-3P, OW-1P, AF-1S, AF-14S, GM-5D, OW-3D, OW-4D)

Table 3

GE OHD 000 817 312
GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Quality Monitoring

Water-Bearing Zone	Well ID - VOC Sampling			Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter	Well Screen				Total Depth (ft bTOC) ³
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²						Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
Perched													
			AF-2P	456379.19	1418008.71	562.10	563.39	2.00	28.00	534.10	33.00	529.10	34.46
			AF-3P	456297.40	1417884.19	560.40	561.82	2.00	21.00	539.40	31.00	529.40	32.42
AF-4P	AF-4P		456180.93	1417877.42	560.40	561.90	2.00	24.50	535.90	34.50	525.90	36.21	
	AF-5P ⁴	AF-5P	455882.90	1417831.43	559.80	561.22	2.00	28.00	531.80	33.00	526.80	34.75	
AF-7P	AF-7P	AF-7P	455478.24	1417577.30	559.80	561.21	2.00	31.50	528.30	36.50	523.30	37.43	
AF-13P	AF-13P		456494.02	1416526.13	565.40	566.82	2.00	3.13	562.27	13.13	552.27	15.4 ³	
		AF-23P	457010.00	1417595.00	560.00	559.75	2.00	22.88	537.12	32.88	527.12	32.15	
		AF-24P	456451.17	1417576.18	559.82	558.89	2.00	26.23	533.59	36.23	523.59	35.40	
AF-25P	AF-25P	AF-25P	456074.92	1417500.43	558.40	558.08	2.00	23.27	535.13	33.27	525.13	33.10	
		AOC LDMW-1S	457924.00	1417429.00	556.20	555.81	2.00	13.29	542.91	23.29	532.91	22.90	
		AOC PSTMW-1SR	459022.76	1417784.33	556.91		2.00						
		AOC PSTMW-2S	458993.37	1417998.15	559.90	559.70	2.00	18.50	541.40	28.50	531.40	24.50	
		H-221	454547.97	1417264.66	554.70	554.37	2.00	20.00	534.70	30.00	524.70	28.65	
	OSMW-1P ⁵	OSMW-1P	455078.23	1417736.02	551.50	554.09	2.00	20.00	531.50	30.00	521.50	32.53	
		OSMW-2P	455601.82	1417822.50	554.80	557.01	2.00	27.00	527.80	37.00	517.80	38.87	
	OSMW-10P		455020.27	1417400.34	555.82	558.57	2.00	20.00	535.82	30.00	525.82	32.57	
	OSMW-11P		455459.30	1418006.45	552.04	551.71	2.00	13.00	539.04	23.00	529.04	22.93	
	OSMW-12P		455880.25	1418332.91	553.66	553.35	2.00	14.70	538.96	24.70	528.96	24.63	
	OSMW-13P		455241.47	1417854.22	552.03	551.75	2.00	22.00	530.03	32.00	520.03	32.45	
PMW-3P	PMW-3P		455249.65	1417470.90	557.41	560.10	2.00	16.00	541.41	26.00	531.41	29.07	
TMW-1P	TMW-1P		455737.69	1417702.75	559.77	562.12	2.00	22.00	537.77	32.00	527.77	33.84	
USG													
	AF-4S	AF-4S		456183.67	1417879.81	560.30	562.22	2.00	43.00	517.30	53.00	507.30	54.03
		AF-5S	AF-5S	455887.32	1417833.15	559.60	561.60	2.00	41.00	518.60	51.00	508.60	51.92
AF-6S	AF-6S			456056.4	1417402.71	560.10	562.67	2.00	41.00	519.10	51.00	509.10	52.80
AF-7S	AF-7S	AF-7S	455482.27	1417577.68	559.70	562.02	2.00	45.00	514.70	55.00	504.70	56.68	
AF-9S	AF-9S	AF-9S	455790.53	1416793.04	562.00	564.19	2.00	50.00	512.00	60.00	502.00	61.75	
AF-11S	AF-11S		456094.23	1416577.99	564.70	565.20	2.00	53.00	511.70	63.00	501.70	63.27	
AF-13S	AF-13S		456488.94	1416522.95	565.20	567.91	2.00	45.60	519.60	55.60	509.60	55.6 ³	
AF-19S	AF-19S		455823.23	1417037.78	561.60	563.87	2.00	52.40	509.20	62.40	499.20	64.65	
OSMW-1S	OSMW-1S	OSMW-1S	455082.59	1417738.59	551.50	554.14	2.00	41.00	510.50	51.00	500.50	52.84	
OSMW-3S	OSMW-3S	OSMW-3S	455309.01	1417107.64	557.10	559.91	2.00	54.00	503.10	64.00	493.10	66.60	
OSMW-4S	OSMW-4S	OSMW-4S	456144.10	1416386.57	565.50	565.10	2.00	65.00	500.50	75.00	490.50	75.84	
		OSMW-5S	453589.27	1416137.49	576.70	576.44	2.00	63.80	512.90	73.80	502.90	73.54	
		OSMW-6S	455149.40	1416267.11	586.61	586.38	2.00	80.00	506.61	90.00	496.61	88.78	
		OSMW-8S	454625.51	1415147.34	584.64	584.33	2.00	77.41	507.23	87.41	497.23	86.70	
		OSMW-9S	455705.63	1415409.73	594.66	594.37	2.00	88.80	505.86	98.80	495.86	101.30	
		OSMW-10S		455019.93	1417400.39	555.82	558.59	2.00	47.20	508.62	57.20	498.62	58.20
		OSMW-11S		455459.42	1418006.57	552.04	551.64	2.00	37.25	514.79	47.25	504.79	47.20
PMW-3S	PMW-3S		455249.82	1417470.89	557.41	560.12	2.00	44.80	512.61	54.80	502.61	57.40	
TMW-1S	TMW-1S	TMW-1S	455739.88	1417703.19	559.78	561.63	2.00	48.30	511.48	58.30	501.48	59.75	
TMW-2S	TMW-2S	TMW-2S	455597.25	1416929.92	557.01	560.15	2.00	40.00	517.01	50.00	507.01	53.08	

See notes on page 2.

Table 3

GE OHD 000 817 312
GE Aviation Evendale, Ohio - Groundwater IRM
Well Completion Data - Groundwater Quality Monitoring

Water-Bearing Zone	Well ID - VOC Sampling			Northing (feet)	Easting (feet)	Ground Surface Elev (ft)	TOC Elevation (ft)	Inner Casing Diameter	Well Screen				Total Depth (ft bTOC) ³
	Hydraulic Control Monitoring	Progress Monitoring ¹	Semiannual Monitoring ²						Top (ft bgs)	Top (ft msl)	Bottom (ft bgs)	Bottom (ft msl)	
LSG													
			AF-5D	455889.87	1417834.37	559.50	561.66	2.00	100.00	459.50	110.00	449.50	108.10
AF-7D	AF-7D	AF-7D	455489.28	1417578.92	559.70	561.23	4.00	109.00	450.70	119.00	440.70	118.77	
AF-9D			455794.33	1416786.95	562.20	563.93	4.00	78.00	484.20	88.00	474.20	93.30	
AF-11D	AF-11D		456087.97	1416583.70	564.90	566.27	4.00	92.00	472.90	102.00	462.90	101.79	
AF-19D	AF-19D		455818.36	1417039.55	561.70	564.10	2.00	81.20	480.50	91.20	470.50	93.40	
		AF-21D	455941.03	1416777.12	560.00	559.61	2.00	80.00	480.00	90.00	470.00	90.11	
OSMW-1D	OSMW-1D	OSMW-1D	455082.67	1417738.40	551.10	554.16	2.00	80.00	471.10	90.00	461.10	92.75	
OSMW-3D	OSMW-3D	OSMW-3D	455309.10	1417107.28	557.10	559.91	2.00	131.00	426.10	141.00	416.10	143.31	
OSMW-4D	OSMW-4D	OSMW-4D	456143.93	1416386.96	565.50	565.14	2.00	127.00	438.50	137.00	428.50	135.94	
		OSMW-5D	452875.51	1416398.42	560.53	560.25	2.00	121.00	439.53	131.00	429.53	130.72	
		OSMW-6D	455147.40	1416265.11	586.38	586.08	2.00	149.77	436.61	159.77	426.61	162.20	
		OSMW-7D	456711.82	1415686.05	592.44	592.09	2.00	141.00	451.44	151.00	441.44	148.80	
		OSMW-8D	454625.45	1415147.03	584.64	584.34	2.00	175.30	409.34	185.30	399.34	187.20	
OSMW-9D	OSMW-9D		455705.86	1415409.84	594.66	594.39	2.00	166.00	428.66	176.00	418.66	175.60	
OSMW-10D	OSMW-10D		455020.11	1417400.16	555.82	558.61	2.00	130.00	425.82	140.00	415.82	142.63	
		OSMW-11D		455459.26	1418006.71	552.04	551.72	2.00	81.00	471.04	91.00	461.04	90.30
		PMW-2D		456024.30	1417902.40	560.05	562.47	2.00	125.00	435.05	135.00	425.05	139.70
PMW-3D	PMW-3D			455249.80	1417471.07	557.41	560.04	2.00	126.00	431.41	136.00	421.41	139.75
PMW-4D	PMW-4D			456424.32	1416617.44	564.33	567.25	2.00	130.00	434.33	140.00	424.33	142.51
	TMW-1D	TMW-1D	455740.26	1417702.92	559.78	562.02	2.00	94.30	465.48	104.30	455.48	106.45	
TMW-2D	TMW-2D	TMW-2D	455597.15	1416930.07	557.01	559.86	2.00	117.30	439.71	127.30	429.71	129.32	

Notes

¹ Quarterly Progress Monitoring in the Perched, USG and LSG.² Semiannual sampling occurs in the second and fourth quarters.³ Total depths from ground surface (GM-3P, OW-1P, AF-13S, AF-14S, GM-5D, OW-3D, OW-4D).⁴ The passive bag for AF-5P was stuck and the well could not be sampled.⁵ OSMW-1P did not have a passive bag deployed and was not sampled.

Table 4
GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-14) - Detected Parameters Only

Location Sample Date		AF-11D 9/17/2014	AF-11S 9/17/2014	AF-13P 9/17/2014	AF-13S 9/17/2014	AF-19D 9/17/2014	AF-19S 9/17/2014	AF-25P 9/16/2014	AF-4P 9/17/2014	AF-4S 9/17/2014
FIELD PARAMETERS	units									
Temperature (°C)	Deg C	15.81	16.57	20.09	17.09	16.00	16.68	19.49	15.60	15.81
DO (mg/L)	mg/L	0.32	0.21	NM	0.39	0.17	0.47	0.09	0.33	0.63
Turbidity (NTUs)	NTUs	NM	NM	NM						
pH	S.U.	8.22	7.27	5.97	7.64	7.29	7.52	7.50	7.25	7.45
Conductivity (mS/cm)	mS/cm	0.58	0.646	0.512	0.654	0.686	0.802	2.022	1.153	0.97
ORP (mV)	mV	-341.1	-130.0	-63.0	-181.2	-179.9	-198.7	-166.9	-187.4	-171.1
DETECTABLE VOCs	units									
1,1,1-Trichloroethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	290	29	1
1,1-Dichloroethane	ug/l	< 1 U	0.51 J	< 1 U	< 1 U	< 1 U	0.34 J	48	5	1.2
1,1-Dichloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	45	2.2	< 1 U
Acetone	ug/l	< 10 U	< 80 U	< 20 U	< 10 U					
Benzene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 8 U	< 2 U	0.81 J
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 8 U	< 2 U	< 1 U
Chloroethane	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	9.1	< 2 U	< 1 U
Chloroform	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	1.7 J	0.62 J	< 1 U
cis-1,2-Dichloroethene	ug/l	0.91 J	3.2	< 1 U	16	< 1 U	0.59 J	77	2	7.5
Methylene Chloride	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	16 B	< 2 U	< 1 U
Tetrachloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	4 J	9.4	< 1 U
trans-1,2-Dichloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	3.7 J	< 2 U	0.28 J
Trichloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	< 1 U	270	74	0.57 J
Vinyl Chloride	ug/l	2.1	10	< 1 U	0.53 J	< 1 U	12	6 J	< 2 U	1.2

Notes:

1) J = Estimated

2) NM = Not Measured

2) See Table 3 for listing of semiannual wells

Table 4
GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-14) - Detected Parameters Only

Location Sample Date		AF-5S 9/17/2014	AF-6S 9/17/2014	AF-7D 9/16/2014	AF-7P 9/16/2014	AF-7S 9/16/2014	AF-9S 9/17/2014	OSMW-10D 9/16/2014	OSMW-10P 9/16/2014	OSMW-10S 9/16/2014
FIELD PARAMETERS units										
Temperature (°C)	Deg C	15.97	18.82	14.65	17.63	17.43	16.61	14.79	17.55	17.38
DO (mg/L)	mg/L	0.37	0.44	0.17	0.26	0.21	0.97	0.08	0.16	0.09
Turbidity (NTUs)	NTUs	NM	NM	NM						
pH	S.U.	7.59	7.37	7.33	7.04	7.21	7.48	7.01	7.11	7.14
Conductivity (mS/cm)	mS/cm	0.914	0.843	1.025	0.78	0.865	0.824	0.968	1.263	0.801
ORP (mV)	mV	-205.2	-187.3	-130.0	-157.6	-136.0	-157.5	-106.8	-108.3	-110.2
DETECTABLE VOCs units										
1,1,1-Trichloroethane	ug/l	< 1 U	< 1 U	< 1 U	0.4 J	< 20 U	< 1 U	< 1 U	62	40
1,1-Dichloroethane	ug/l	5.1	< 1 U	< 1 U	6.3	9.6 J	0.64 J	< 1 U	23	17
1,1-Dichloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	4.6	3.8
Acetone	ug/l	3.9 J	< 10 U	< 10 U	5.9 J	< 200 U	< 10 U	< 10 U	< 33 U	< 20 U
Benzene	ug/l	0.47 J	0.27 J	< 1 U	< 1 U	< 20 U	0.33 J	< 1 U	< 3.3 U	< 2 U
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 3.3 U	< 2 U
Chloroethane	ug/l	0.83 J	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 3.3 U	< 2 U
Chloroform	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 3.3 U	< 2 U
cis-1,2-Dichloroethene	ug/l	5.2	0.81 J	< 1 U	19	600	1.1	< 1 U	8.5	34
Methylene Chloride	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	49 B	< 1 U	< 1 U	7.6 B	< 2 U
Tetrachloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 3.3 U	< 2 U
trans-1,2-Dichloroethene	ug/l	< 1 U	< 1 U	< 1 U	< 1 U	< 20 U	< 1 U	< 1 U	< 3.3 U	< 2 U
Trichloroethene	ug/l	< 1 U	< 1 U	< 1 U	0.16 J	< 20 U	< 1 U	0.24 J	110	19
Vinyl Chloride	ug/l	36	0.89 J	< 1 U	7.7	540	10	1.3	< 3.3 U	0.86 J

Notes:

1) J = Estimated

2) NM = Not Measured

2) See Table 3 for listing of semiannual wells

Table 4
GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-14) - Detected Parameters Only

Location Sample Date		OSMW-11D 9/17/2014	OSMW-11P 9/17/2014	OSMW-11S 9/17/2014	OSMW-12P 9/17/2014	OSMW-13P 9/17/2014	OSMW-1D 9/17/2014	OSMW-1S 9/17/2014	OSMW-3D 9/16/2014	OSMW-3S 9/16/2014
FIELD PARAMETERS	units									
Temperature (°C)	Deg C	14.46	17.10	15.31	14.96	16.00	15.20	16.17	14.66	17.41
DO (mg/L)	mg/L	0.27	0.37	0.30	0.53	0.40	0.32	0.36	0.07	0.10
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM	NM	NM	NM	NM
pH	S.U.	7.20	7.08	7.02	7.39	6.95	7.45	7.34	7.19	7.20
Conductivity (mS/cm)	mS/cm	1.400	1.137	1.329	0.886	1.104	1.259	1.215	1.014	0.913
ORP (mV)	mV	-82.0	-125.1	-98.2	-40.2	-81.6	-164.2	-195.3	-147.5	-138.9
DETECTABLE VOCs	units									
1,1,1-Trichloroethane	ug/l	< 5.7 U	< 1 U	1.7 J	2.6	< 1 U	< 1 U	< 4 U	< 1 U	< 1 U
1,1-Dichloroethane	ug/l	19	1.5	18	2.1	2.8	1.8	1.1 J	3.3	0.36 J
1,1-Dichloroethene	ug/l	< 5.7 U	< 1 U	< 5.7 U	< 1 U	< 1 U	< 1 U	< 4 U	< 1 U	< 1 U
Acetone	ug/l	< 57 U	< 10 U	< 57 U	< 10 U	< 10 U	8.4 J	< 40 U	4.3 J	< 10 U
Benzene	ug/l	< 5.7 U	< 1 U	< 5.7 U	< 1 U	< 1 U	0.37 J	< 4 U	0.9 J	< 1 U
Carbon disulfide	ug/l	< 5.7 U	0.31 J	< 5.7 U	< 1 U	< 1 U	< 1 U	< 4 U	< 1 U	< 1 U
Chloroethane	ug/l	< 5.7 U	< 1 U	< 5.7 U	< 1 U	< 1 U	< 1 U	< 4 U	< 1 U	< 1 U
Chloroform	ug/l	< 5.7 U	< 1 U	< 5.7 U	< 1 U	< 1 U	< 1 U	< 4 U	< 1 U	< 1 U
cis-1,2-Dichloroethene	ug/l	180	1.5	170	0.48 J	1.1	3	72	7.3	0.67 J
Methylene Chloride	ug/l	3.5 J B	< 1 U	2.5 J B	< 1 U	< 1 U	< 1 U	9.2 B	< 1 U	< 1 U
Tetrachloroethene	ug/l	< 5.7 U	< 1 U	< 5.7 U	< 1 U	< 1 U	< 1 U	< 4 U	< 1 U	< 1 U
trans-1,2-Dichloroethene	ug/l	3.7 J	< 1 U	3.4 J	< 1 U	< 1 U	< 1 U	< 4 U	0.54 J	< 1 U
Trichloroethene	ug/l	15	0.15 J	12	3.9	< 1 U	< 1 U	< 4 U	11	< 1 U
Vinyl Chloride	ug/l	2.5 J	< 1 U	2.5 J	< 1 U	< 1 U	27	120	4.4	1.3

Notes:

1) J = Estimated

2) NM = Not Measured

2) See Table 3 for listing of semiannual wells

Table 4

GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-14) - Detected Parameters Only

Location Sample Date	OSMW-4D 9/17/2014	OSMW-4S 9/17/2014	OSMW-6D 9/17/2014	OSMW-9D 9/17/2014	OSMW-9S 9/17/2014	PMW-2D 9/16/2014	PMW-3D 9/16/2014	PMW-3P 9/16/2014	PMW-3S 9/16/2014
FIELD PARAMETERS units									
Temperature (°C)	Deg C	15.44	16.62	15.79	15.57	16.27	13.96	14.57	17.35
DO (mg/L)	mg/L	0.10	0.38	0.46	0.26	0.41	0.10	0.13	0.19
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM	NM	NM	NM
pH	S.U.	7.00	6.82	7.50	7.25	7.28	7.31	7.28	7.14
Conductivity (mS/cm)	mS/cm	0.94	0.769	0.775	0.86	1.286	0.931	0.734	0.888
ORP (mV)	mV	-122.5	-125.2	-201.6	-182.7	-200.8	-123.8	-59.7	-21.4
DETECTABLE VOCs units									
1,1,1-Trichloroethane	ug/l	< 1.4	U	< 2.5	U	< 3.3	U	< 1	U
1,1-Dichloroethane	ug/l	5.4		1.1	J	1.9	J	< 1	U
1,1-Dichloroethene	ug/l	0.66	J	< 2.5	U	< 3.3	U	< 1	U
Acetone	ug/l	5.3	J	< 25	U	< 33	U	< 10	U
Benzene	ug/l	< 1.4	U	< 2.5	U	< 3.3	U	< 1	U
Carbon disulfide	ug/l	< 1.4	U	< 2.5	U	< 3.3	U	< 1	U
Chloroethane	ug/l	< 1.4	U	< 2.5	U	< 3.3	U	< 1	U
Chloroform	ug/l	< 1.4	U	< 2.5	U	< 3.3	U	< 1	U
cis-1,2-Dichloroethene	ug/l	21		0.61	J	8		< 1	U
Methylene Chloride	ug/l	< 1.4	U	< 2.5	U	1.2	J B	< 1	U
Tetrachloroethene	ug/l	< 1.4	U	< 2.5	U	< 3.3	U	< 1	U
trans-1,2-Dichloroethene	ug/l	1.6		< 2.5	U	< 3.3	U	< 1	U
Trichloroethene	ug/l	< 1.4	U	< 2.5	U	< 3.3	U	< 1	U
Vinyl Chloride	ug/l	26		40		49		13	150

Notes:

1) J = Estimated

2) NM = Not Measured

2) See Table 3 for listing of semiannual wells

Table 4
GE OHD 000 817 312
GE Aviation_Evendale, Ohio - Groundwater IRM
Summary of Groundwater Sampling Results (3Q-14) - Detected Parameters Only

Location Sample Date	PMW-4D 9/17/2014	TMW-1D 9/16/2014	TMW-1P 9/16/2014	TMW-1S 9/16/2014	TMW-2D 9/17/2014	TMW-2S 9/17/2014
FIELD PARAMETERS	units					
Temperature (°C)	Deg C	15.43	14.82	18.01	16.85	15.14
DO (mg/L)	mg/L	0.40	0.08	0.73	0.09	0.53
Turbidity (NTUs)	NTUs	NM	NM	NM	NM	NM
pH	S.U.	7.25	7.25	7.45	7.02	7.41
Conductivity (mS/cm)	mS/cm	0.938	0.996	1.722	1.746	1.04
ORP (mV)	mV	-163.5	-145.5	-16.1	-161.1	-138.4
DETECTABLE VOCs						
1,1,1-Trichloroethane	ug/l	< 1 U	< 1 U	29	< 1 U	< 18 U
1,1-Dichloroethane	ug/l	< 1 U	< 1 U	7.4	< 1 U	< 18 U
1,1-Dichloroethene	ug/l	< 1 U	< 1 U	5.4	< 1 U	< 18 U
Acetone	ug/l	< 10 U	< 10 U	< 17 U	< 10 U	< 180 U
Benzene	ug/l	< 1 U	< 1 U	< 1.7 U	< 1 U	< 18 U
Carbon disulfide	ug/l	< 1 U	< 1 U	< 1.7 U	< 1 U	< 18 U
Chloroethane	ug/l	< 1 U	< 1 U	< 1.7 U	< 1 U	< 18 U
Chloroform	ug/l	< 1 U	< 1 U	< 1.7 U	< 1 U	< 18 U
cis-1,2-Dichloroethene	ug/l	< 1 U	< 1 U	4.5	2.6	480
Methylene Chloride	ug/l	< 1 U	< 1 U	2.7 B	< 1 U	11 J B
Tetrachloroethene	ug/l	< 1 U	< 1 U	< 1.7 U	< 1 U	< 18 U
trans-1,2-Dichloroethene	ug/l	< 1 U	< 1 U	< 1.7 U	< 1 U	140
Trichloroethene	ug/l	< 1 U	< 1 U	46	< 1 U	3.4 J
Vinyl Chloride	ug/l	3.2	0.42 J	< 1.7 U	7.7	31
						1.3

Notes:

1) J = Estimated

2) NM = Not Measured

2) See Table 3 for listing of semiannual wells

Table 5

GE OHD 000 817 312
Evendale, Ohio
Groundwater Chemical Cross Contamination Analyses

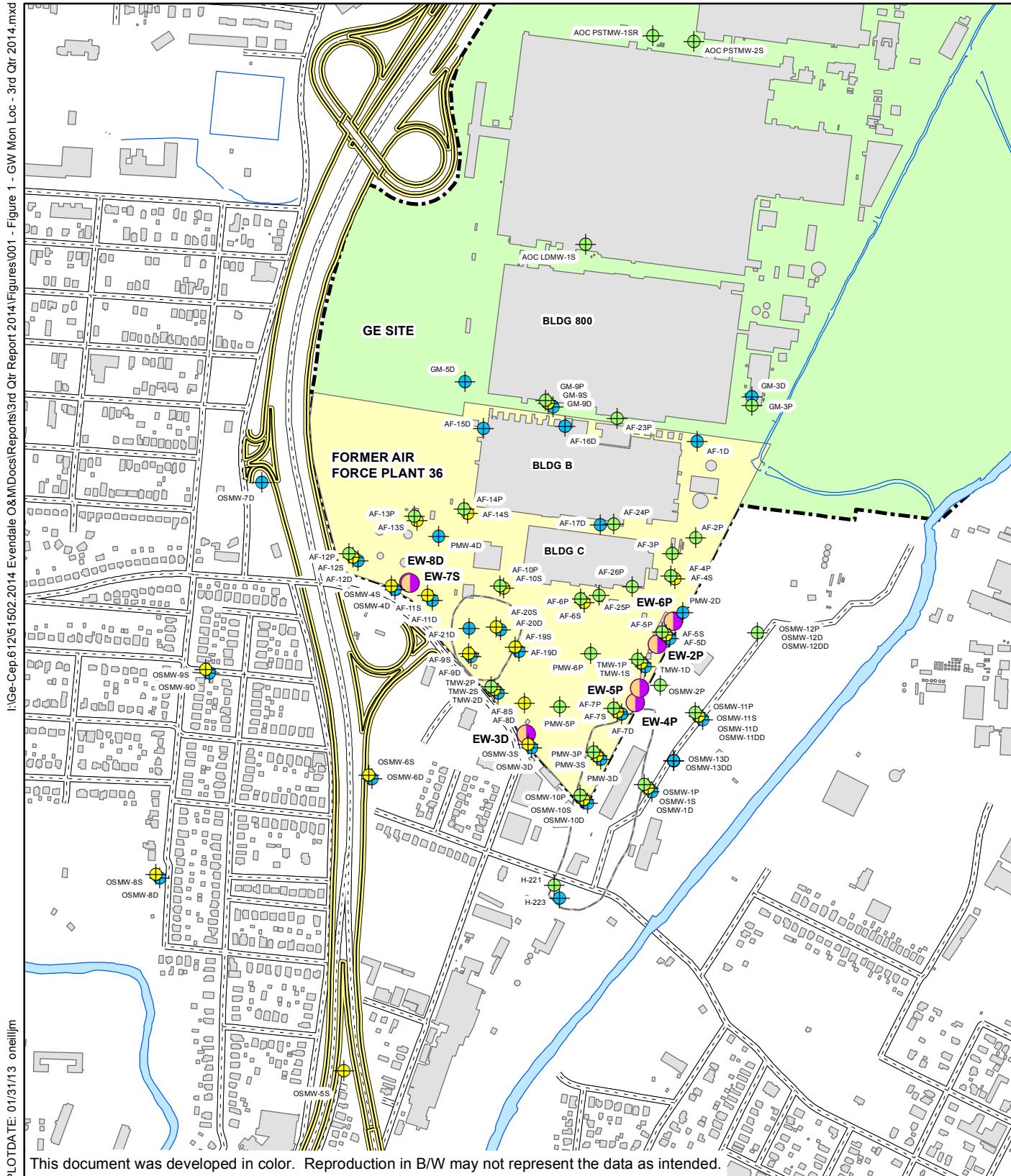
			9/16/2014			
Well ID	TCA_grp UTL Value ¹ (µmol/L)	TCE_grp UTL Value ¹ (µmol/L)	TCA Group Values (µmol/L)	TCE Group Values (µmol/L)	TCA Group Comparison	TCE Group Comparison
AF-11D	0.0092	2.3875	0.00	0.04	ACCEPT	ACCEPT
AF-13P	0.0359	0.0359	0.00	0.00	ACCEPT	ACCEPT
AF-13S	0.0359	0.0359	0.00	0.17	ACCEPT	REJECT ²
AF-19D	0.0359	0.0359	0.00	0.00	ACCEPT	ACCEPT
AF-19S	2.0047	3.6624	0.00	0.20	ACCEPT	ACCEPT
AF-4P	0.0359	0.0359	0.29	0.64	REJECT ²	REJECT ²
AF-6S	0.0359	0.0359	0.00	0.02	ACCEPT	ACCEPT
TMW-1P	3.1442	5.8024	0.35	0.40	ACCEPT	ACCEPT
AF-11S	0.0842	3.1943	0.01	0.19	ACCEPT	ACCEPT
AF-25P	12.3782	11.3839	3.26	3.00	ACCEPT	ACCEPT
AF-4S	1.1853	5.9427	0.02	0.10	ACCEPT	ACCEPT
AF-5S	2.5715	9.0739	0.06	0.63	ACCEPT	ACCEPT
AF-7D	0.0240	0.0261	0.00	0.00	ACCEPT	ACCEPT
AF-7P	10.8813	9.7516	0.07	0.32	ACCEPT	ACCEPT
AF-7S	0.7677	31.8240	0.10	14.83	ACCEPT	ACCEPT
AF-9S	0.0694	0.7894	0.01	0.17	ACCEPT	ACCEPT
OSMW-10D	0.1633	0.1269	0.00	0.02	ACCEPT	ACCEPT
OSMW-10P	3.9915	2.7868	0.74	0.92	ACCEPT	ACCEPT
OSMW-10S	3.5411	1.2163	0.51	0.51	ACCEPT	ACCEPT
OSMW-11D	0.7604	8.2552	0.19	2.05	ACCEPT	ACCEPT
OSMW-11P	0.0232	0.0066	0.02	0.02	ACCEPT	REJECT ²
OSMW-11S	1.0371	11.9864	0.19	1.92	ACCEPT	ACCEPT
OSMW-12P	0.0529	0.0352	0.04	0.03	ACCEPT	ACCEPT
OSMW-13P	0.0510	0.0688	0.03	0.01	ACCEPT	ACCEPT
OSMW-1D	1.0602	23.5751	0.02	0.46	ACCEPT	ACCEPT
OSMW-1S	1.8189	54.1122	0.01	2.66	ACCEPT	ACCEPT
OSMW-3D	0.0969	13.9650	0.03	0.23	ACCEPT	ACCEPT
OSMW-3S	0.0952	0.8117	0.00	0.03	ACCEPT	ACCEPT
OSMW-4D	0.1902	1.2387	0.06	0.65	ACCEPT	ACCEPT
OSMW-4S	0.1184	7.8398	0.01	0.65	ACCEPT	ACCEPT
OSMW-6D	0.8025	3.8001	0.02	0.87	ACCEPT	ACCEPT
OSMW-9D	0.0359	0.4657	0.00	0.21	ACCEPT	ACCEPT
OSMW-9S	0.0327	86.8772	0.00	2.95	ACCEPT	ACCEPT
PMW-2D	0.0021	0.0359	0.003	0.00	REJECT ²	ACCEPT
PMW-3D	3.1451	2.5338	0.07	0.95	ACCEPT	ACCEPT
PMW-3P	2.5478	4.0693	0.75	2.02	ACCEPT	ACCEPT
PMW-3S	2.3156	2.3051	0.10	1.25	ACCEPT	ACCEPT
PMW-4D	0.0359	0.1228	0.00	0.05	ACCEPT	ACCEPT
TMW-1D	0.0359	0.0093	0.00	0.01	ACCEPT	ACCEPT
TMW-1S	0.2465	10.5703	0.00	0.15	ACCEPT	ACCEPT
TMW-2D	0.0454	9.8486	0.00	6.92	ACCEPT	ACCEPT
TMW-2S	0.0039	0.0254	0.00	0.02	ACCEPT	ACCEPT

Footnotes:

1. The methodology for calculating the upper tolerance limit (UTL) is included in the Performance Monitoring Plan.

2. The introwell analysis for AF-4P (TCA and TCE Groups), AF-13S (TCE Group), OSMW-11P (TCE Group) and PMW-2D (TCA Group) were triggered because the analysis compared the UTL values developed from non-detectable or low detections of baseline concentrations and is triggered by a slight increase in CVOCs and are not an indication of vertical or lateral cross-contamination.

Figures

FIGURE 1

**GE
EVENDALE, OHIO**

LEGEND

- PERCHED MONITORING WELL LOCATION
- USG MONITORING WELL LOCATION
- LSG MONITORING WELL LOCATION
- EXTRATION WELL

**GROUNDWATER IRM
MONITORING LOCATIONS**

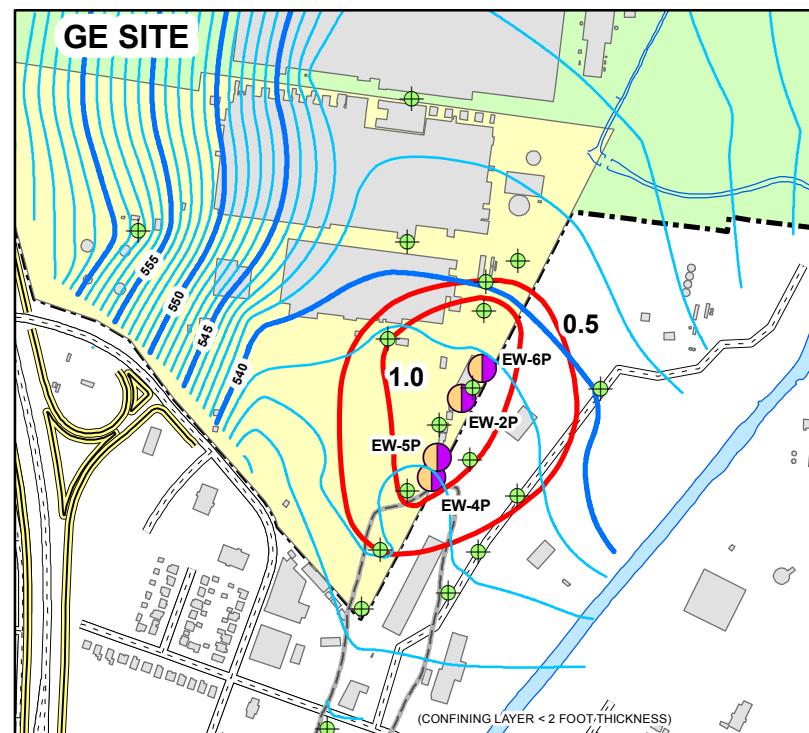
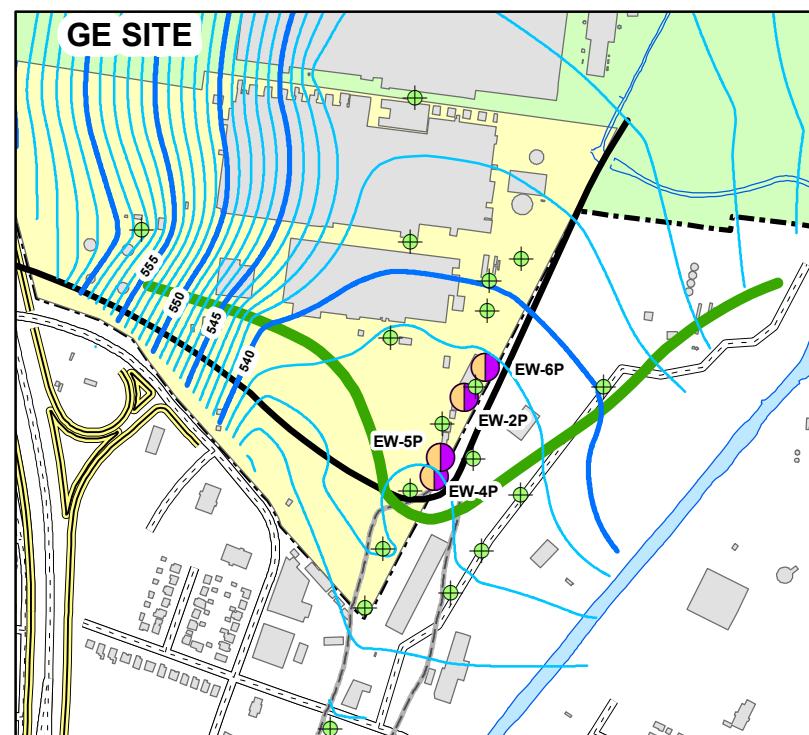
0 400 800 1,200 1,600
Feet

N

FIGURE 2

I:\Ge-Cep.6125\1502.2014 Evendale O&M\Docs\Reports\3rd Qtr Report 2014\Figures002 - Figure 2 - Perched - 3rd Qtr 2014.mxd

PLOT DATE: 6/11/2014 oneilljm

Perched Zone**Approximate Drawdown (ft)**
September 30, 2014*Based on Manual & Transducer Measurements***Estimated Drawdown
(feet) ——————****Perched Zone****Design Capture
Zone (320 gpm) ——————****Apparent Capture
Zone (143 gpm) ——————
3Q 2014**

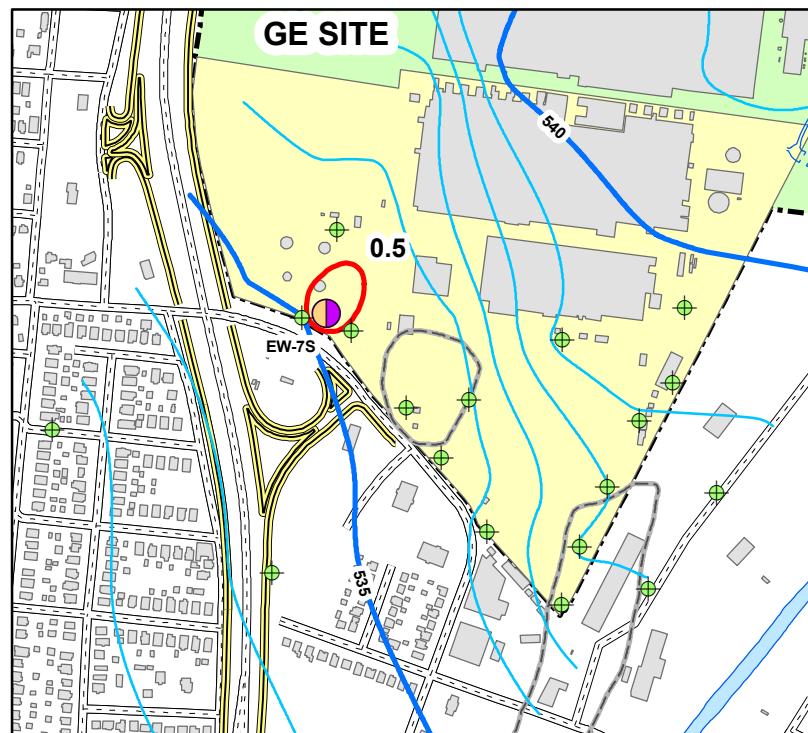
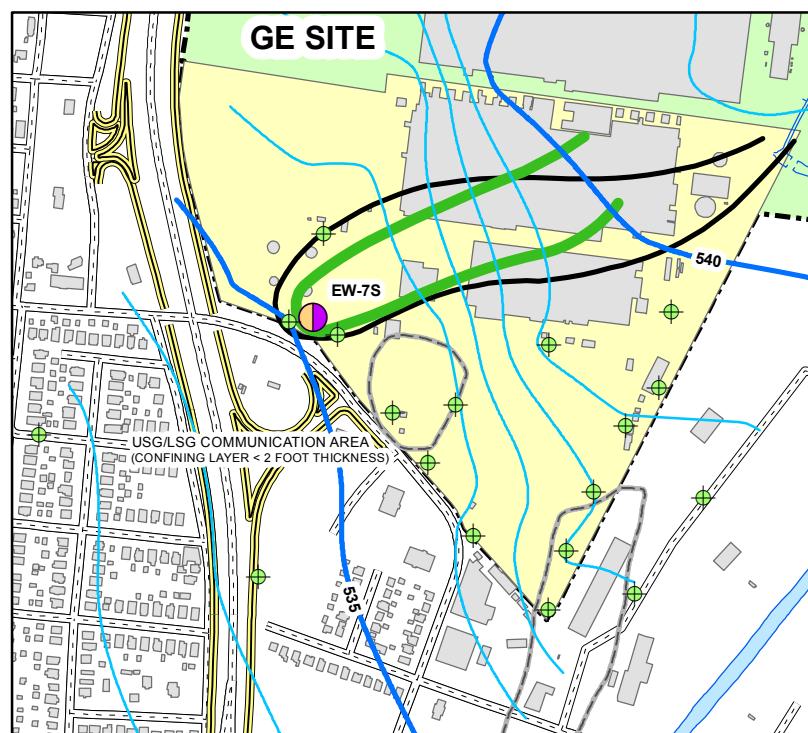
This document was developed in color. Reproduction in B/W may not represent the data as intended.

**GE
EVENDALE, OHIO****PERCHED UNIT
ESTIMATED DRAWDOWN
AND CAPTURE ZONE**

FIGURE 3

I:\Ge-Cep\612\51502\2014\Evendale O\MDocs\Reports\3rd Qtr Report 2014\Figures\003 - Figure 3 - USG - 3rd Qtr 2014.mxd

PLOT DATE: 03/14/13 oneilljm

USG Zone**Approximate Drawdown (ft)**
September 30, 2014*Based on Manual & Transducer Measurements***Estimated Drawdown
(feet)** ——————**USG Zone****Design Capture
Zone (80 gpm)** ——————**Apparent Capture
Zone (10 gpm)
3Q 2014** ——————

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**GE
EVENDALE, OHIO**

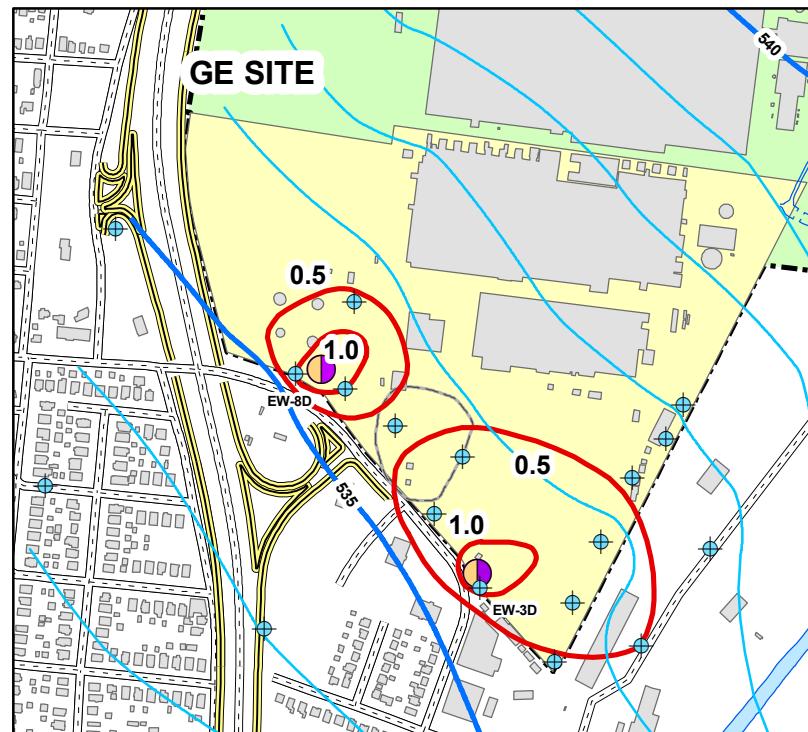
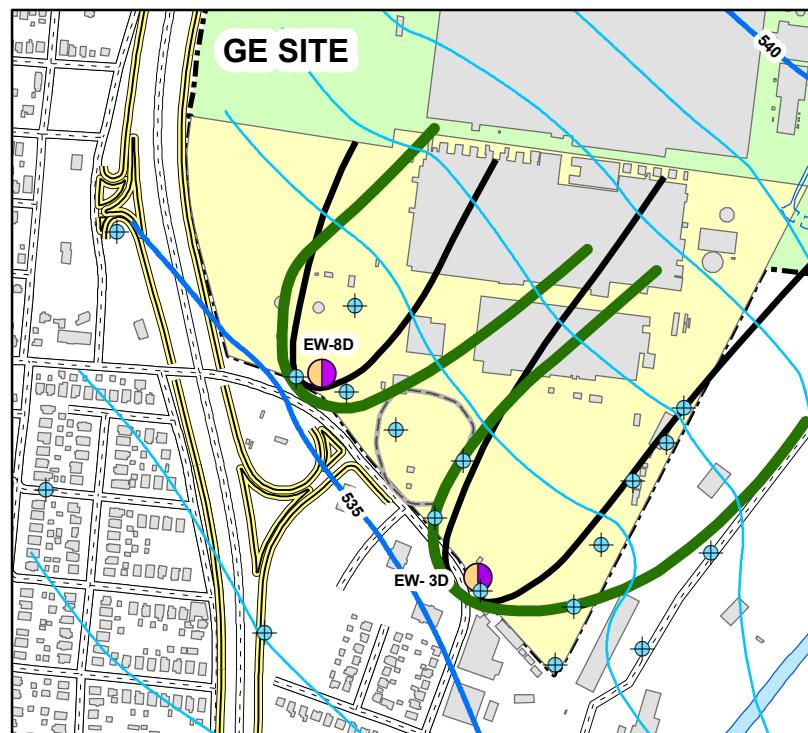
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**USG UNIT
ESTIMATED DRAWDOWN
AND CAPTURE ZONE**

FIGURE 4

I:\Ge-Cep\612251502\2014 Evendale O&M\Docs\Reports\3rd Qtr Report\2014\Figures\004 - Figure 4 - LSG - 3rd Qtr 2014.mxd

PLOT DATE: 6/11/2014 oneilljm

LSG Zone**Approximate Drawdown (ft)
September 30, 2014***Based on Manual & Transducer
Measurements***Estimated Drawdown
(feet)** —————**LSG Zone****Design Capture
Zone (160 gpm)** —————**Apparent Capture
Zone (98 gpm)
3Q 2014** —————

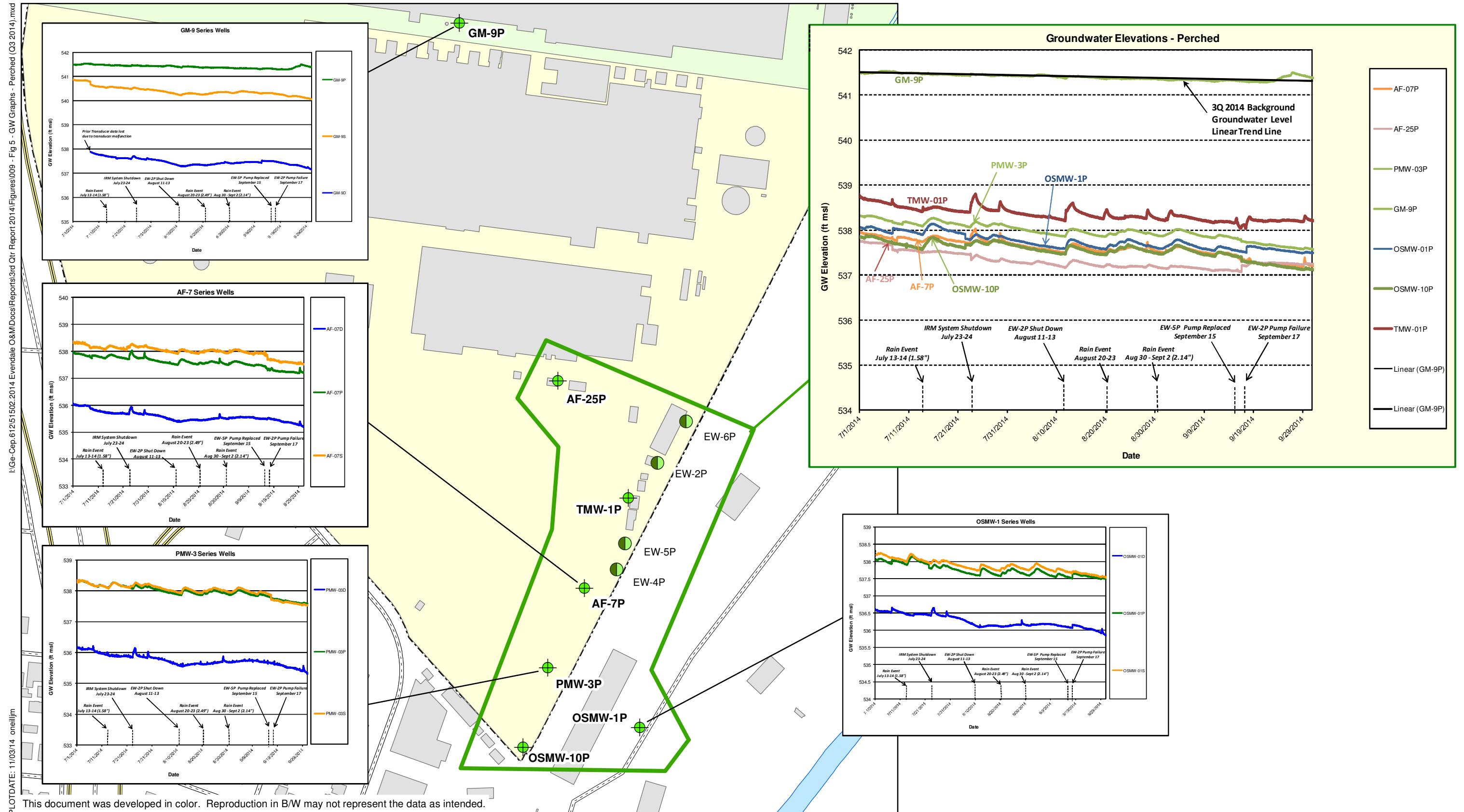
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**GE
EVENDALE, OHIO**

N

**LSG UNIT
ESTIMATED DRAWDOWN
AND CAPTURE ZONES**

FIGURE 5



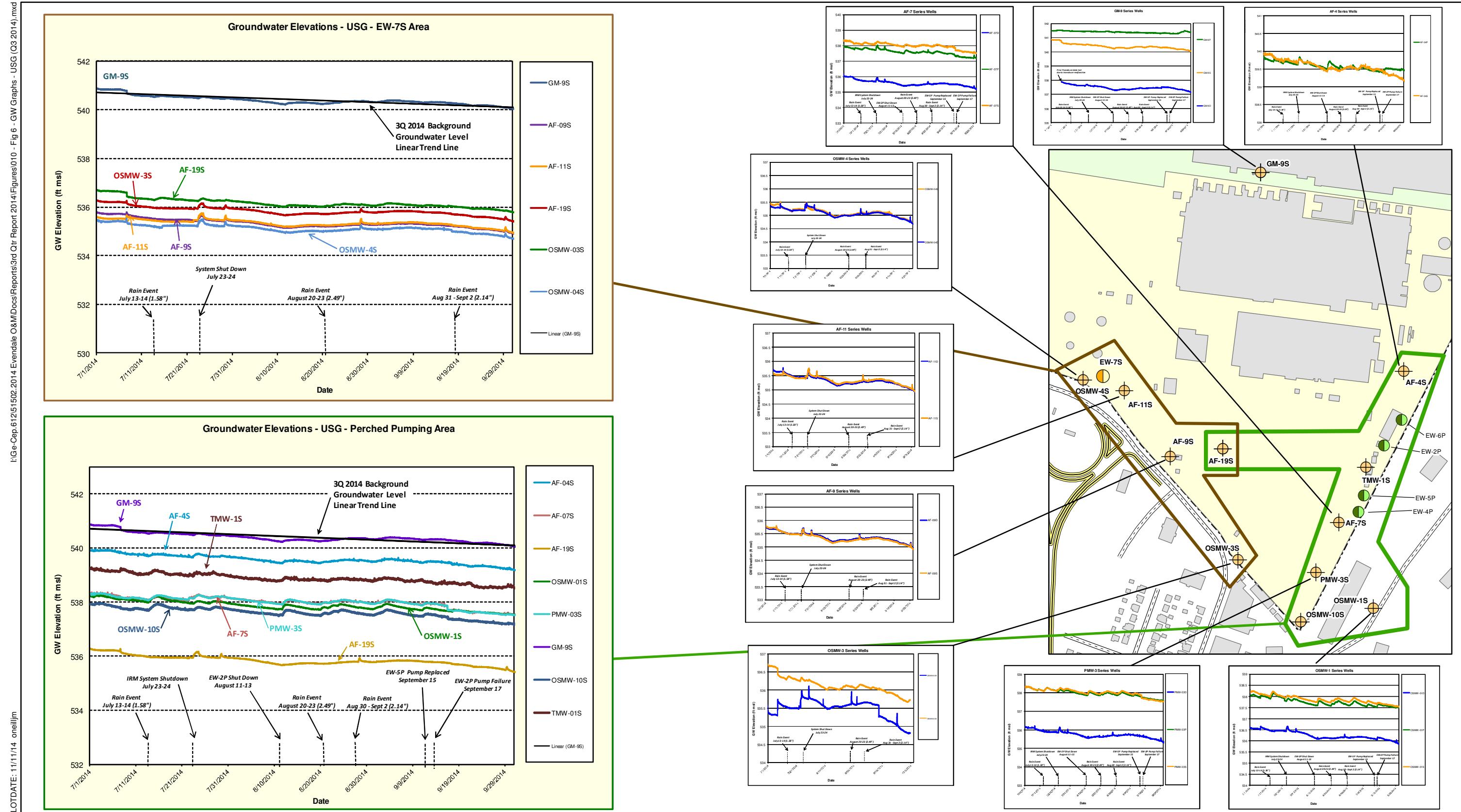
LEGEND

- PERCHED MONITORING WELL
- PERCHED EXTRACTION WELL

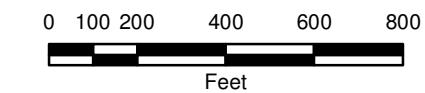
GE EVENDALE, OHIO

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Feet

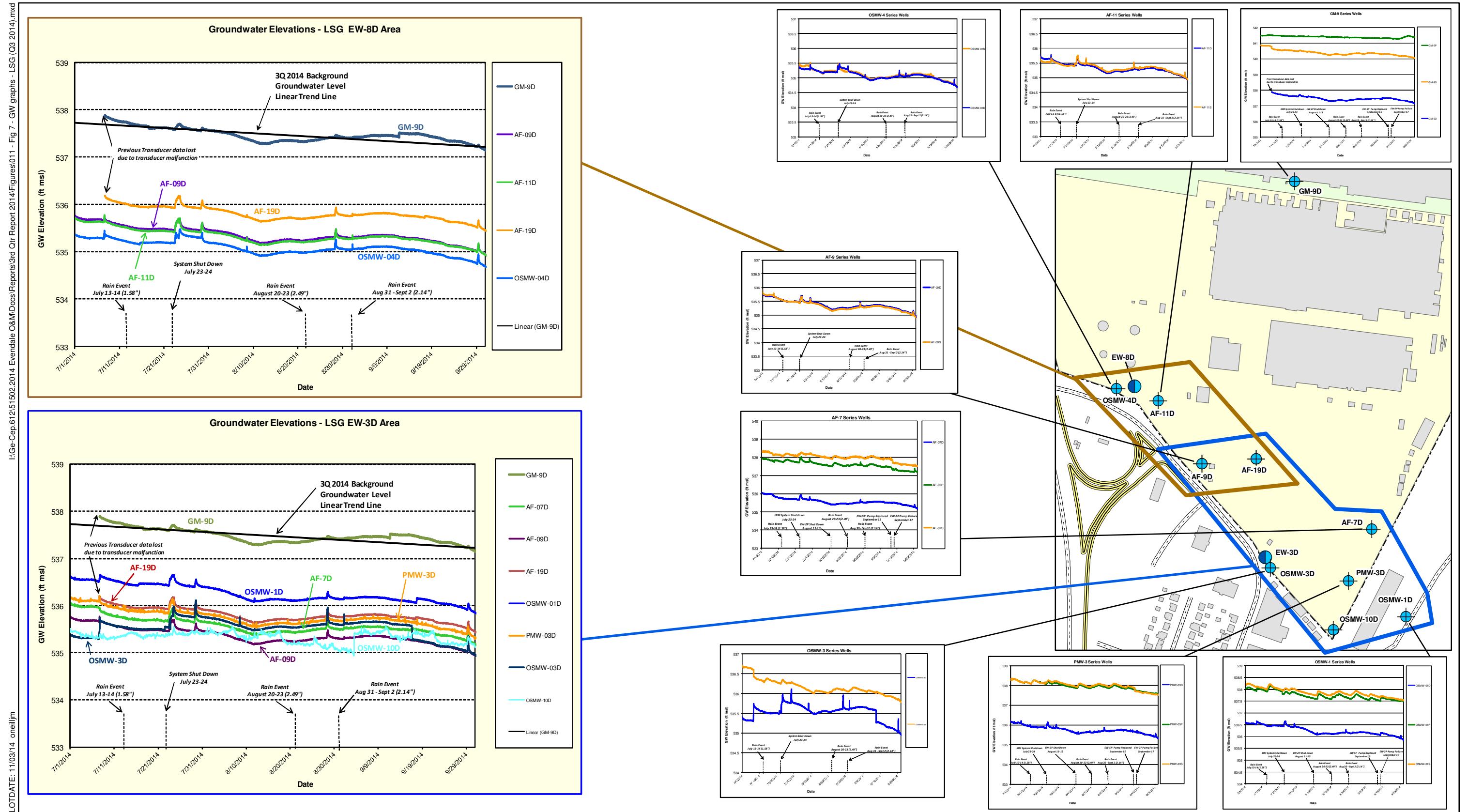
GROUNDWATER ELEVATION HYDROGRAPHS PERCHED UNIT 2014 3rd QUARTER

**LEGEND**

- USG MONITORING WELL
- USG EXTRACTION WELL
- PERCHED EXTRACTION WELL

**GE
EVENDALE, OHIO**

**GROUNDWATER ELEVATION HYDROGRAPHS
USG UNIT
2014 3rd QUARTER**

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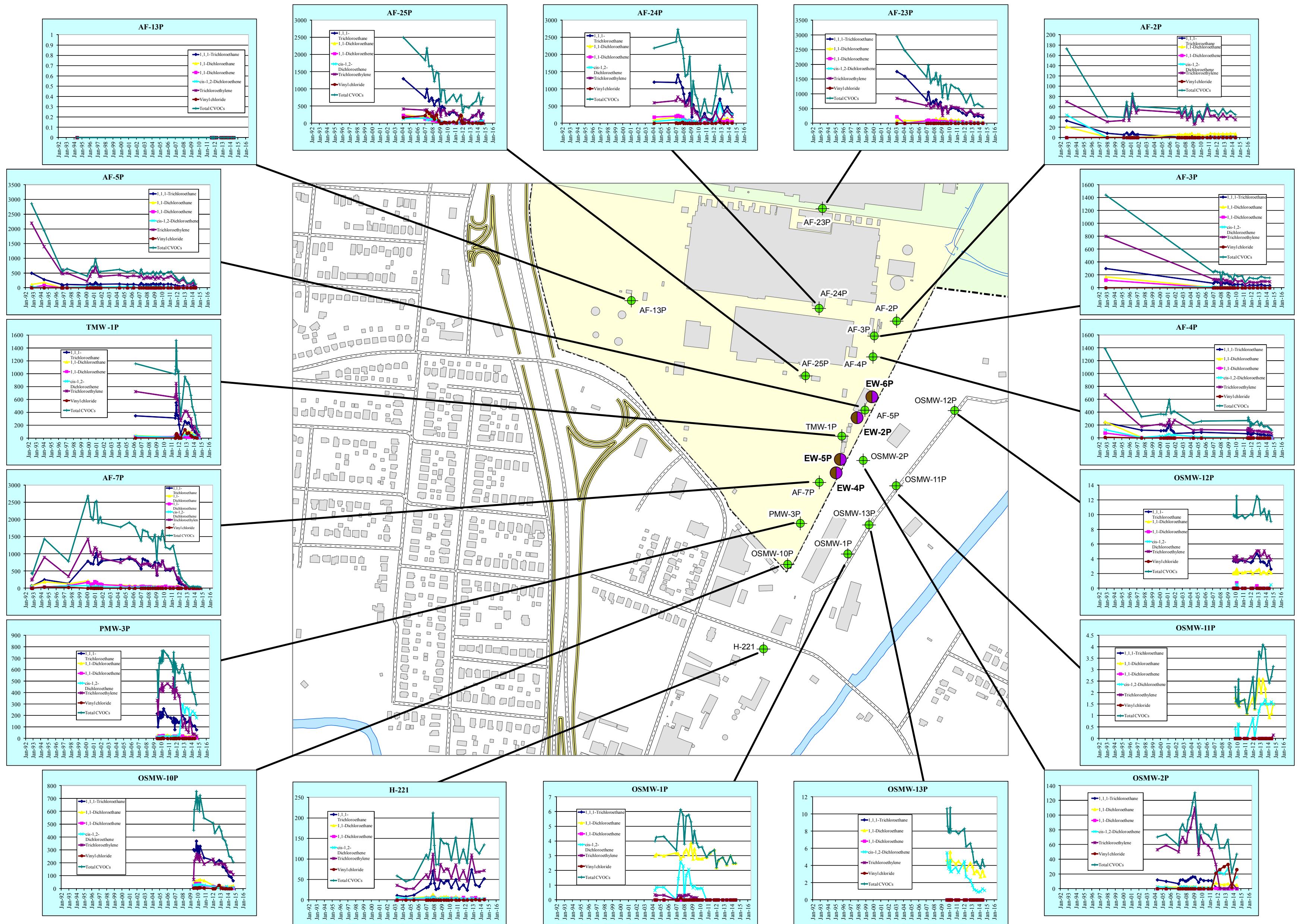
LEGEND

- LSG MONITORING WELL
- LSG EXTRACTION WELL

GE EVENDALE, OHIO

0 100 200 400 600 800
Feet

GROUNDWATER ELEVATION HYDROGRAPHS LSG UNIT 2014 3rd QUARTER



This document was developed in color. Reproduction in B/W may not represent the data as intended.

FIGURE 8

LEGEND

● PERCHED AQUIFER MONITORING WELL - GROUNDWATER SAMPLE COLLECTED FOR ANALYTICAL ANALYSIS

● PERCHED AQUIFER EXTRACTION WELL

GRAPH KEY

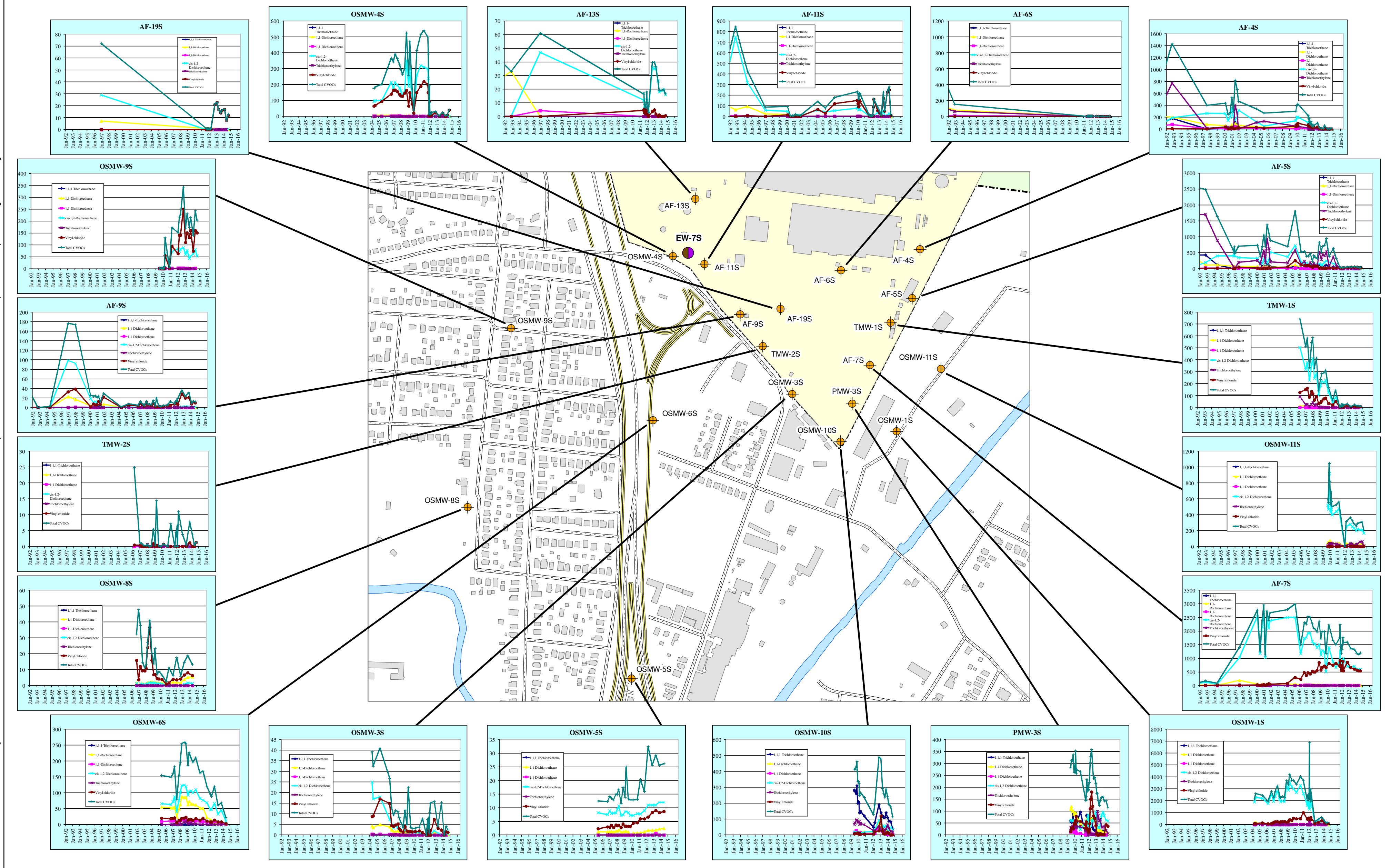
● 1,1,1-TRICHLOROETHANE	● 1,1-DICHLOROETHANE
● 1,1-DICHLOROETHENE	● CIS-1,2-DICHLOROETHENE
● TRICHLOROETHYLENE	● VINYL CHLORIDE
● TOTAL CVOCs	

NOTES:
1. RESULTS ARE SHOWN IN ug/l.
2. NON-DETECTED RESULTS ARE SHOWN AT THE X AXIS.
3. CONCENTRATION SCALE MAY VARY BY GRAPH.

PERCHED AQUIFER HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

0 250 500 1,000
Feet

OCTOBER 2014
61251502-005

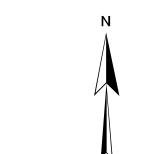


USG AQUIFER HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

GE
EVENDALE, OHIO

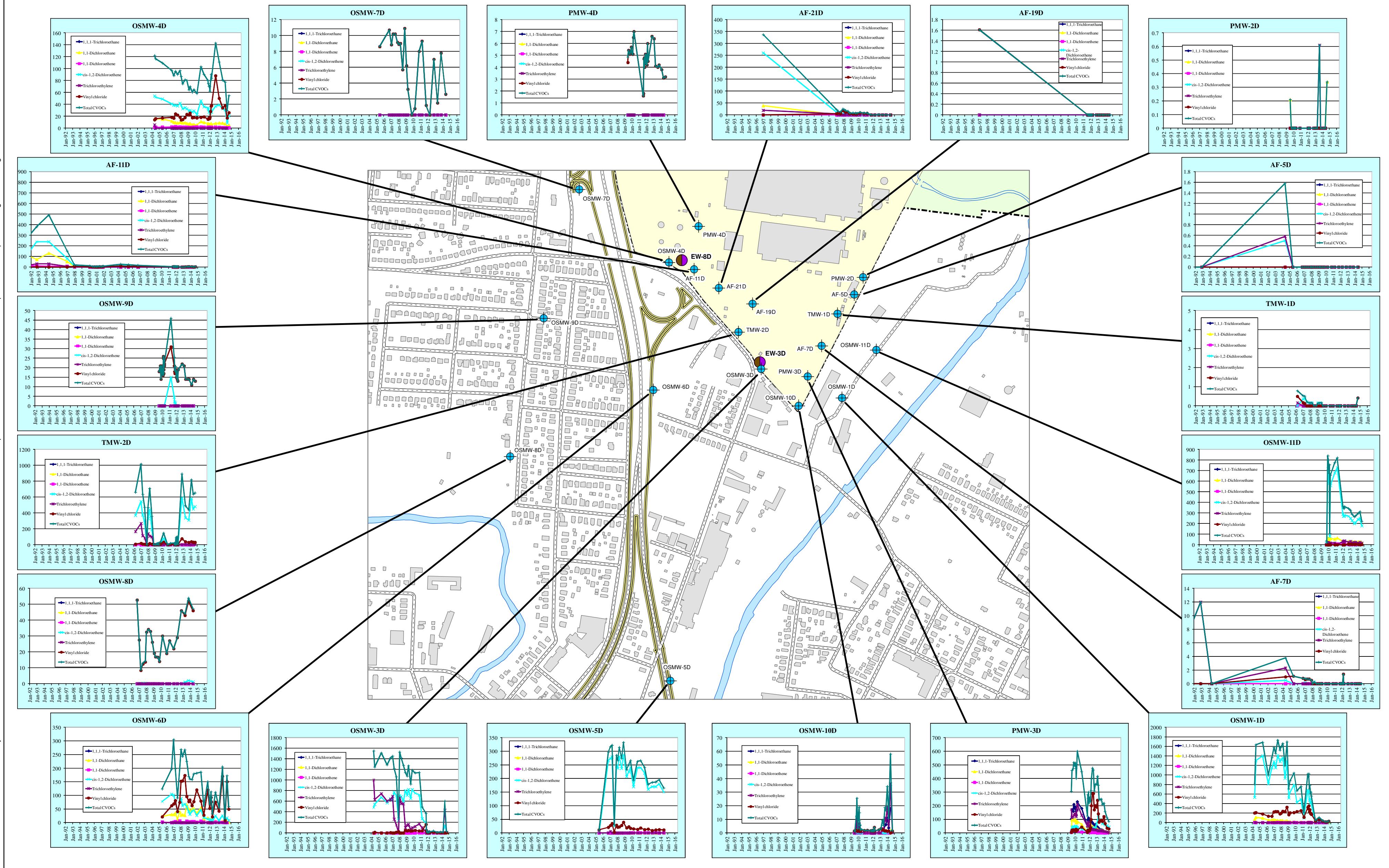
0 250 500 1,000
Feet

FIGURE 9



OCTOBER 2014
61251502-006

O'BRIEN & GERE



LSG AQUIFER HISTORICAL GROUNDWATER ANALYTICAL RESULTS FOR IRM MONITORING WELLS

0 250 500 1,000
Feet

FIGURE 10

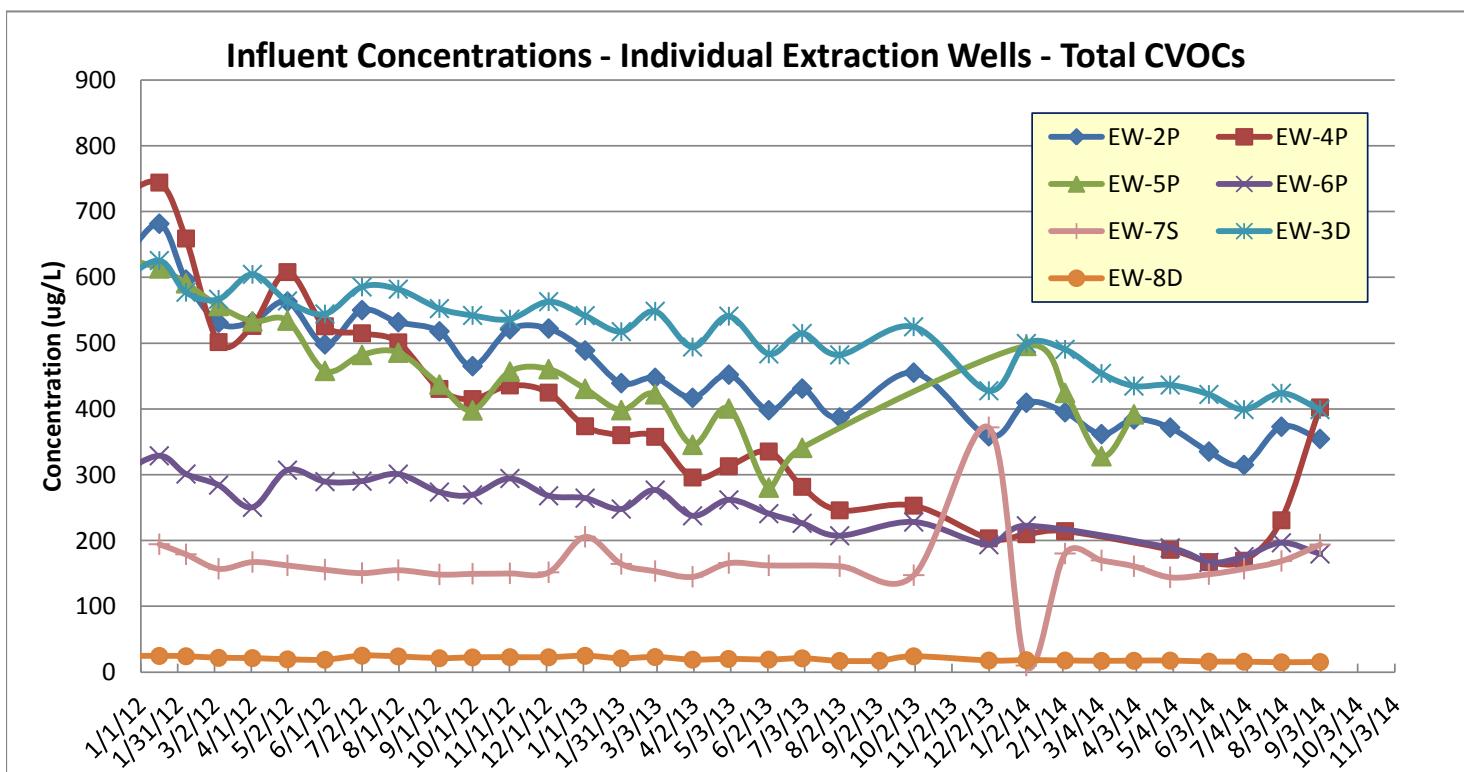
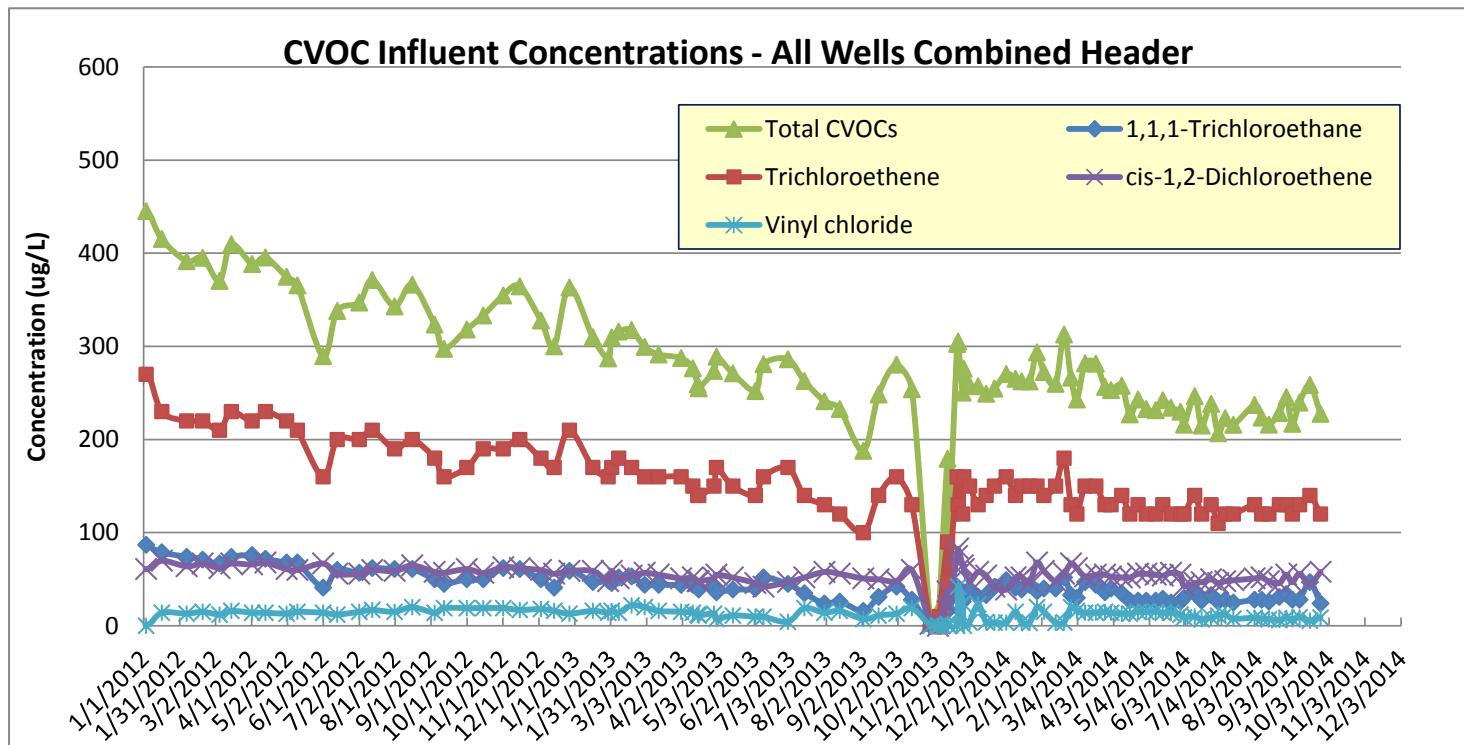


OCTOBER 2014
612\51502-007

O'BRIEN & GERE

FIGURE 11

Total CVOC Concentration Plots – Extraction Wells



Appendix A
*IRM Groundwater Sampling
Program QA/QC Results and
Data Verification*

APPENDIX A QUALITY ASSURANCE/QUALITY CONTROL SUMMARY

Level A data verification was performed by O'Brien & Gere Engineers, Inc. to assess groundwater IRM performance monitoring data quality for samples collected during the Third Quarter 2014 (September 16 and 17, 2014). Data verification was performed in accordance with the *IRM Performance Monitoring Plan* dated December 2010. The data verification level (Level A) for the performance samples was selected based upon data use (screening and trend analysis) and the quality of the laboratory data. Data verification was utilized to confirm the quality of the laboratory (TestAmerica Buffalo, Inc. (TA Buffalo) of Amherst, New York), which has an established record of acceptable quality for target analyte data from the routine groundwater IRM performance monitoring program. The Level A data verification included review of: (1) laboratory documentation, (2) chain-of-custody (COC) documentation, (3) target analyte results, (4) laboratory data qualifiers, (5) laboratory quantitation limits and method detection limits, (6) laboratory blank analysis, and (7) quality control samples.

The results of the Level A data verification indicated the following:

- Laboratory documentation was complete.
- Chain-of-custody (COC) documentation was complete.
- Target analyte results and data qualifiers were reported in accordance with the project requirements.
- Laboratory blank analysis did not indicate evidence of artifacts from the sampling or analytical process with the following exception: the method blanks were within control limits and were not detected above the method detection limits, except that the method blanks for batches 148841 and 148988 contained Methylene Chloride above the method detection limit at concentrations of 2.14 µg/L and 1.94 µg/L, respectively. Therefore, the methylene chloride detections for the samples from AF-7S-091614, AF-25P-091614, OSMW-1S-091714, OSMW-6D-091714, OWMW-9S 091714, OSMW-10P-091614, OSMW-11D-091714, OSMW-11S-091714, PMW-3D-091614, PMW-3P-091614, PMW-3S-091614 and TMW-1P-091614 are qualified as non-detected based on laboratory blank contamination. The remaining samples were non-detected for methylene chloride and do not need further qualification, and the associated data is usable as reported.
- Laboratory quantitation limits are within the limits listed in the QAPP, except for acetone and 2-butanone which were reported as 10 µg /l (SAP QLs are 5 µg /l). The reporting limits for acetone and 2-butanone reported by TA Buffalo were revised from 5 µg/l to 10 µg/l.
- The matrix spike / matrix spike duplicate (MS/MSD) recoveries were within control limits; however, the MS/MSD for batch 148841 associated with PMW-3P exceeded the relative percent difference (RPD) limit of 30% for Bromomethane; however, bromomethane was not detected in the associated sample; therefore, no further qualification is needed, and the associated data is usable as reported.
- The surrogate recoveries for the samples were within control limits; therefore, the associated data is usable as reported.
- The continuing calibration verification (CCV) for analytical batches 148660, 148841, 148988, and 149323 exceeded control criteria for one compound or multiple compounds. The samples associated with these CCVs were non-detects for the affected analytes. In accordance with the laboratory SOP, a low level CCV at the reporting limit (labeled as an MRL) was analyzed for each batch and the affected compounds were detected; therefore, the data has been reported. No further corrective action was required. The following samples are impacted: AF-4S-091714, AF-5S-091714, AF-6S-091714, AF-7D-091614, ADW-100-091614 (AF-7D Duplicate), AF-7P-091614, AF-7S-091614, AF-9S-091714, AF-11D-091714, ADW-101-091714 (AF-11D Duplicate), AF-11S-091714, AF-13P-091714, AF-13S-091714, AF-19D-091714, AF-19S-091714, AF-25P-091614, OSMW-1D-091714, OSMW-1S-091714, OSMW-3D-091614, OSMW-3S-091614, OSMW-9D-091714, OSMW-10D-091614, OSMW-10P-091614, OSMW-11P-091714, OSMW-12P-091714, PMW-2D-091614, PMW-3D-091614, PMW-3P-091614, PMW-3S-091614, PMW-4D-091714, TMW-1D-091614, TMW-

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1P-091614, TMW-1S-091614, TMW-2S-091714, Trip Blank-091614 and Trip Blank 091714, but do not require further qualification, and the associated data is usable as reported

- The laboratory control samples (LCS) were within control limits; therefore, the associated data is usable as reported.
- Seventeen samples were diluted to bring the target analytes into the calibration range: AF-4P 091714, AF-7S-091614, AF-25P-091614, OSMW-1S-091714, OSMW-4D-091714, OSMW-4S-091714, OSMW-6D-091714, OSMW-9S-091714, OSMW-10P-091614, OSMW-10S-091614, OSMW-11D-091714, OSMW-11S-091714, PMW-3D-091614, PMW-3P-091614, PMW-3S-091614, TMW-1P-091614 and TMW-2D-091714. Elevated reporting limits are provided.

The overall usability for the performance monitoring data is acceptable for the intended use.